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HOUSEKEEPER'S GUIDE
TO THE
FISHMARKET,
WITH AN ACCOUNT OF
THE FISHES AND FISHERIES
OF
DEVON AND CORNWALL.

Price 1s.

43. 57.



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"the profit of the earth is for all"

**THE HOUSEKEEPER'S
GUIDE TO THE FISH-MARKET**

FOR EACH MONTH OF THE YEAR;

**AND AN ACCOUNT OF
THE FISHES AND FISHERIES
OF**

Devon and Cornwall,

**IN RESPECT OF COMMERCE, ECONOMY, NATURAL HISTORY,
AND STATISTICS.**

BY

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"Devon and Cornwall Natural History Society;" Corresponding
Member of the "Royal Cornwall Geological Society."

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C O N T E N T S .

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Cornwall.

THE HOUSEKEEPER'S GUIDE

TO THE

FISH - MARKET,

&c. &c.

THE author of this little book hopes it is supererogation to suggest an apology for its production, or to argue the importance of his subject. Every civilized community should, he thinks, be aware of the natural resources which surround it,—offering to the mercantile, the trading, the industrious, and even the wealthier classes much of the means of their support.

He here brings under the notice of the *Merchant*, the character, and circumstances of our fisheries,—produces to the *Fishmonger*, statements affecting his immediate interests,—offers to the *Man of Science*, certain facts, and views calculated to promote the study of fishes,—bears to the *Community at large* such practical information as intimately concerns Domestic Economy,—and approaches the *Fisherman* of all estates and denominations with a few items referring to his avocations.

If further pleas for the production of this work are required of him, besides those above named, he points to the importance of gathering together the scattered items of the *statistical conditions* of this community, to the undeniable need which exists for local records respecting *Icthyology*, whereby science may be advanced, to the demand the interests of *public health* make for an index which shall guide the purchase of a food variable in quality from excellence

to noxiousness, in nearly all species, according to "season," to the probably neglected sources of profit and economical arrangement, and lastly to the glaring necessity the whole condition of the Fisheries exhibits, for the appointment of legal restraints on certain practices, and of suited officers to watch the application and results of these.

Mr. Couch's "Cornish Fauna" and Mr. Yarrell's "British Fishes" have furnished the means of introducing many species into the General List, and many particular facts, elsewhere, which the Author has had no knowledge of save through those publications; Mr. Burt's "Review of the Commerce of Plymouth" (1816) has furnished him with certain data in the Statistical department; excepting these resources, the work is a compilation from memoranda set down in a Diary, as facts presented themselves to his notice.

The tribe of fishes, greatly secluded as they are from human view, are in a very

different position as respects a recorded history of their numbers, habits, characters, &c. from other classes of creatures. No instrument has yet been devised by which our vision can penetrate the recesses of their element, and, the means we possess for withdrawing them from their abodes are particularly scanty. Observers of Nature situated like myself, under the control of restraining circumstances, cannot possibly possess themselves of very extensive information regarding the Ichthyology of a neighbourhood like this, presenting at once a marine and a fluviatile department: a daily pursuit of the subject by the most active measures, would alone, after the lapse of years, enable a Naturalist to acquire a fund of facts fit to be boasted of. A great number of circumstances in the history of the tribe conspire, also, to restrict our knowledge of it, the whole class being replete with irregularity of conduct. The construction of a calendar for the months will not apply

rigidly to all English fisheries, as respects times of migratory and other proceedings; the males and the young of some species observe rules of their own in their movements; the period allotted to spawning extends, in some species, over a considerable range of time; some spawn at two or more different periods; some are interfered with by circumstance of food, and temperature; hence the uncertainty of many statements, even when experience is considerable. Few families or genera of fishes seem to own any common instinct or one common propensity in regard of general habits, and, though we well know that "all discord" is "harmony not understood," we are sometimes apt to think that confusion and caprice pervade the economy of the waters.

ECONOMICAL REGISTER
OF
FACTS RESPECTING THE FISHERIES,
WITH
A List, for each month, of those "IN SEASON,"
or in ordinary consumption.

January.

WHITINGS are in greatest abundance during this and the following month, and are perhaps never finer. They are commonly for sale *through the greater part of the year*, but in spring they are decidedly poor, having scarcely recovered from spawning; towards the end of the year they become good. They frequently attain the length

of 1½ ft. Those of Torbay and of the coast off Teignmouth are considered very fine. LINGS are mostly caught during this and the succeeding month, but in spring they spawn. Spearing EELS, as they lie imbedded in the mud of estuaries and harbours, is a department of fishing practised in this, and the other colder months on to March. Large numbers thus secured are brought to Plymouth Market from the mud of the Tamar near Saltash.

List for the Month.

Atherine (Smelt)	Sprat
	Anchovy
Tub	
Piper	Eel
Red Gurnard	
	Ling
Mackarel	Whiting
Dory	Cod
	Haddock
Skate	Pouting
Homelyn Ray	Coalfish
Sharp-nosed Ray	

February.

DABS are in best condition in February, March, and April, though sold commonly at other periods; spawn in May or June.

List for the Month.

Atherine (Smelt)	Dabb
	Mackarel
Sprat	Eel
Anchovy	
Ling	Tub
Whiting	Piper
Pouting	Red Gurnard

March.

Although MACKAREL are taken, and brought to Market before this time, and throughout the summer, and are even in fine summers more generally an article of food during that season, they are never in better state than in March, when a great object for the fisherman; they leave the coast to spawn often at the end of June and beginning of July, sometimes later, being taken with roe and milt in them occasionally as late as the beginning of August. When laden with spawn and milt they are by no means impoverished. CONGERS, which spawn in the depth of winter, now first become eatable, continuing so, on to the end of autumn. The young are taken the size of small fresh water eels, off the rocks in the middle of summer, and they continue in those spots through the autumn; by November these young are about $1\frac{1}{2}$ ft. long.

List for the Month.

Mackarel	Thornback
Pouting	Anchovy
	Sprat
Conger	Dabb
Atherine (Smelt)	Turbot
	Brill

April.

The **SCAD** or **HORSE MACKAREL** first appears at the end of this month. It becomes common in summer and continues to be taken through the autumn on to the end of September, though the numbers are generally small at all times. The **TURBOT** and the **BRILL** are now with roe and milt, and are accounted *best* as food at this season, though excellent at most others.

List for the Month.

Peal	Atherine (Smelt)
Trout	
	Thornback
Scad	
Mackarel	Pouting
	Hake
Conger	
Eel	Brill
	Turbot
	Dabb

May.

The **ATHERINE**, **SMELT** or **MELET** is in roe, and is considered to be best as food now, and in June. **WRASSES** or **ROCK-FISHES** of all kinds are in season now, and through the summer. **SALMONS**, as they wander off the mouths of our rivers are occasionally taken thus early, though Midsummer is the more usual period of the early fishery. **PEALS** are on their passage up the rivers and are now first seasonable ; many are caught in bays and harbours as they linger in the brackish water prior to their ascent. The Angler and Fly-Fisher essay their skill on the **TROUT** streams, **Trouts** at this time getting active ; many enthusiasts, however, choose to go forth in April.

“ Beneath a willow long forsook,
The fisher seeks his custom'd nook ;
And bursting thro' the crackling sedge
That crowns the current's cavern'd edge,
He startles from the bordering wood
The bashful wild-duck's early brood.”

The sportsman should desist from Trout fishing by October as the species then spawns; indeed it would be wise to desist *in September*.

List for the Month.

Sturgeon	Basse
	Surmullet
Salmon	
Peal	Launce
Trout	
	Pollack
Dory	Hake
Scad	
Mackarel	Atherine (Smelt)
Thornback	Wrasses
Conger	Turbot
Eel	Brill

June.

This month is the commencement of general summer operations ; previously to this, the generality of fishes have been either poor in flesh, or, too far retired into the depths of the sea to be available to the skill of the fisherman. **FLUKES** (young Flounders) now enter the mouths of rivers in great numbers. **SOLES** and nearly all the tribe of **FLATFISH**, are now in good condition, remaining so for several succeeding months. The whole family spawn in spring and quickly recover their flesh. **SEA BREAMS** (all the species), are good food through summer.* **LAUNCE** are very tolerable

* Mr. Yarrel recommends the following as an improved mode of preparing the **COMMON SEA BREAM** for eating :—
“ When thoroughly cleaned, the fish should be wiped dry, but none of the scales should be taken off. In this state it should be broiled, turning it often, and if the skin cracks, flour it a little to keep the outer case entire. When on table the whole skin and scales turn off without difficulty, and the muscle beneath, saturated in its own natural juices, which the outside covering has retained, will be found of good flavour.”

food at all times, but are best in summer; spawn in December. POLLACK fishing now commences, and is practised throughout the fine weather. BASSE enter harbours and estuaries in summer, especially in July; remain till September; occasionally reach the weight of 20lbs.

List for the Month.

Breams in general	Mackarel
	Dory
Wrasses in general	Scad
Atherine (Smelt)	
	Eel
Sturgeon	Conger
Bass	
Surmullet	Launce
Salmon	
Peal	Sole
Trout	Plaice
	Turbot
Pilchard	Brill
	Mary-sole
Thornback	Flounder
	Holibut
Pollock	
Hake	

July.

This is a very busy month to the fish dealer, there being many kinds brought to market in great plenty. The **HAKE** now gets common and palatable, remaining so through the Autumn and till the close of the year. The young, from eight inches and upwards, are also brought for sale. It has been always remarked that Hakes are plentiful when Pilchards arrive, and it seems that the species pursues Pilchards as its food. **SKATE** now gets in season, and continues so through autumn and beginning of winter, but is not good in spring or early summer. The **THORNBACK** is chiefly *taken* in spring and summer, owing to its habits of migration, but **ALL THE RAYS** are best as food in the end of autumn, and the early part of winter. Fishing for **CHADS** (young Sea Bream) is a favorite amusement during summer; owing to the readiness with which they seize a bait, and from the numbers that can be taken, they form good sport. The **PILCHARD** fishery often begins thus early, in Cornwall.

List for the Month.

Pilchard	Pollack
Herring	Hake
Homelyn Ray	Mackarel
Sharped-nosed Ray	Scad
Skate	Dory
Thornback	
	Salmon
Launce	Trout
	Peal
Sturgeon	
	Eel
Mullet	Conger
Atherine (Smelt)	
	Dabb
Wrasses in general	Brill
	Turbot
Breams in general	Sole
	Mary-sole
Surmullet	Holibut
Basse	Plaice
	Flounder

August.

The summer fishery is still actively pursued. The two kinds of MULLET, though frequently secured in July, do not abound till August; they continue to be taken in estuaries, and even as far up the rivers as the tide reaches, during all the Autumn. It is an agreeable autumnal scene to observe a party of fishermen arrive in their boat high up a river with the full tide, and deposit the ground sein to capture the shoal of silvery Mulletts which had gone up to secure some favorite food conveyed to them with the stream of fresh water; the fishers exert themselves with great activity to draw ashore their captives, who, impatient of the new restraint, leap over the headline as opportunity offers. Mulletts taken in bays and harbours during November or December do not make these exertions, they are then less bulky, less silvery, and less agile. DORIES now get common, and continue to be taken till the end of winter; some however may be noticed in the markets nearly the year through. But few of the large ones seem to be reserved for the Plymouth

Market. Mr. Couch observes that the ANCHOVY abounds on the Cornish coast towards the end of summer, and that, sufficient might be procured to supply Great Britain, if attention were directed to the fishery in October, and November. The HERRING is often on our coast in July, but, the fishery seldom prospers till now; it continues to be an object of great importance to the end of November, and sometimes till December. EELS, which have resided through the summer in the fresh parts of rivers, as they descend to the brackish water, on their way to deposit their spawn in harbours, are now taken plentifully by the rod and line, by men stationed in boats midway the stream, at its shallower parts. These Eels proceed at once to the important function of depositing the roe, and, when the cold sets in about Christmas, lay themselves up for the winter in the mud of branches of estuaries, staying in these hybernacula till revisited by the warmth of spring. I know not when Eels are *poor* as diet, but, they seem to be *best* in this month, and the next. Great numbers, natives of the mud of the harbours adjacent to Plymouth, are constant inhabitants of those spots, and seem to continue active even through the winter,—they *perform no*

migration, and do not become torpid; these have the reputation of being the finest, and best tasted of all produced in Devon and Cornwall. Eels have been taken at the mouth of the Erme from April to November; these were good food in each case; the early instances were probably individuals about to pass up the river to fresh water. Some, I believe, are also natives of the fresh rivers,—born of parents which have *not descended to the marine spawning beds*. There are three kinds of Eels natives of Great Britain, and whether these stated varieties of conduct proceed respectively from the instincts of different species, or from all alike, I am not able to say. One taken at the mouth of the Erme in winter proves to be the SNIG EEL of Yarrell. Before the Union Road, in Plymouth, was built on, and while it had the correct designation of “The Marsh,” I well remember, on occasions of the mud being taken out for the purposes of manure, seeing immense Eels exposed to view, as from time to time the shovel of the labourer cut into its slimy bed. Eels inhabiting ponds and inclosed waters can of course make no periodical migrations.

List for the Month.

Basse	Atherine (Smelt)
Surmullet	Mullet
Conger	Salmon
Eel	Peal
	Trout
Herring	
Anchovy	Sole
Pilchard	Flounder
	Plaice
Pollack	Dabb
Hake	Mary-sole
	Holibut
Tub	Turbot
Piper	Brill
Red Gurnard	
	Dory
Wrasses in general	Scad
Breams in general	
Sharp-nosed Ray	Launce
Thornback	
Skate	
Homelyn Ray	

September.

The famed SURMULLET or SEA WOODCOCK is mostly taken at this period, and is now in good condition ; it is however procurable, and good, for three or four preceding months. The RED GURNARD, TUB, and PIPER now get very common, and continue plentiful and good till the end of the year, or beginning of the next ; they are never better than in October ; in spring they spawn, and do not recover till autumn. It rarely happens that the PILCHARD fishery is in general operation till now ; the weather greatly determines the *continuance* of the shoals on the coast, and the practicability of prosecuting the working of the seins, fine winter seeming to favour the fishery and to prolong its prosperity. The Cornish waters are the especial habitation of the Pilchard, and the fishery is there a very considerable commercial object ; the species however does extend itself in a measure to Devonshire, the Bolt being regarded as its eastern limit, some *occasional* visits towards Torbay excepted. SMELTS (*ATHERINES*) are usually taken

now in creeks and estuaries, in shoals, continuing to be a source of profit to the fisherman till spring. The young, about 3 inches long, are often taken with Sprats at the close of the year. **TWAITE SHADS** are about this time first taken. **SPRATS** often become at this time a great object of the fishery, and, continuing to be taken through nearly all the winter, are a source of advantage to the poorer classes at a time when their means of living are reduced. Those first taken,—that is for about two months,—are smaller, and sweeter than the succeeding catches. In the end of November and December the *young of the Herring*,—principally males with a pretty large milt, are captured with the Sprat; these are at once known, if not by superior size, by the absence of the toothed line on the abdomen observable in the Sprat. Sprats are, by the close of December, laden with milt and roe, and are then deficient in flavour, and somewhat poor.

List for the Month.

Sole	Basse
Flounder	Surmullet
Plaice	
Dabb	Mullet
Mary-sole	Atherine
Holibut	
Turbot	Scad
Brill	Dory
Conger	Tub
Eel	Piper
	Red Gurnard
Trout	
	Sharp-nosed Ray
Launce	Skate
	Homelyn Ray
Pollack	
Hake	Sprat
Whiting	Herring
	Pilchard
Breams in general	Twait Shad
	Anchovy
Wrasses in general	

October.

After spawning, MACKAREL often reappear in considerable bodies during this, and even in the next month, on the Cornish Coast. Winter is the principal time in which the SKATE and other of the Ray family are taken for food by the poor, being then good, and in greatest request for winter provision; they are very common even in summer when not in season. The HERRING fishery *prevails* principally during this and the following month; this fish however is also taken at various other times, though seldom in summer before the end of July. At the end of this month COD is first in season, and it remains so to Christmas or a little later; during spring and summer its flesh is lean and watery. "Tamlin Cod" or "Tom Cod" is the young; about July these are a foot long, and as young, are good food the year through. The HADDOCK and the COAL-FISH also are now first in perfection, and remain so till the end of the year. Young Haddock are by December about a foot long. This month closes, for the year, SALMON fishing generally;

numbers seem to crowd forward now to fresh water, there disappearing for the performance of the function of reproduction. Those taken, at this date, generally prove excellent food. In some rivers they continue to be taken on to the end of November, and even in December, in their advance towards fresh water, as in the Fowey; taken thus late, however, they do not prove good; their consumption should be limited to the end of October.

List for the Month.

Plaice	Salmon	Homelyn Ray
Sole		Skate
Flounder	Wrasses generally	Sharp-nosed Ray
Dabb		
Holibut	Tub	Launce
Turbot	Piper	
Brill	Red Gurnard	Pilchard
Mary-sole		Sprat
	Whiting	Herring
Mackarel	Pollack	Twaite Shad
Dory	Cod	Anchovy
	Haddock	
Surmullet	Coal-fish	Mullet
	Hake	Atherine (Smelt)
Conger		

November.

The **POUTING** is in best condition now and in December, but is taken on through the winter months, and in spring when with roe. **PILCHARDS** occasionally make their visit to the shores very late in the year, and thus October and November become at times the season of the sein fishery. The **YOUNG OF POLLACK**, 6 or 8 inches long, are now taken in shoals. **HERRINGS** at times visit the coast in great shoals, even late in the month, contrary to their customary habit of retiring at this time to deep water to spawn.

List for the Month.

Anchovy	Sole	Coal-fish
Twaite Shad	Flounder	Hake
Herring	Dabb	Whiting
Sprat	Plaice	Cod
Pilchard	Mary-sole	Haddock
	Holibut	Pouting
The Wrasses	Turbot	Ling
generally	Brill	
		Atherine (Smelt)
Tub	Dory	
Piper		Skate
Red Gurnard	Surmullet	Homelyn Ray
		Sharp-nosed Ray

December.

MACKAREL often make their appearance in shoals during this month, being the earliest commencement of the general fishery. HAKES are now in great abundance prior to retiring to deep water to spawn ; the females are found heavy with roe. It is from these catches in December that a deal of the winter salted stock is selected.

List for the Month.

Coal-fish	Tub	Dory
Hake	Piper	Mackarel
Ling	Red Gurnard	
Cod		Atherine (Smelt)
Haddock	Eel	
Pouting		Skate
Whiting	Sprat	Homelyn Ray
	Pilchard	Sharp-nosed Ray
	Anchovy	

TABLE

showing the months in which the Fishes ordinarily used as food are "in season," or in common consumption.

[INCLUDING THE CRABS AND SHELL FISH.]

Anchovy	Jan.	Feb.	Ma.	"	"	"	"	Ag.	Sep.	Oct.	Nov.	Dec.
Atherine, Smelt or Melet	Jan.	Feb.	Ma.	Apr.	May	Jun.	July	Ag.	Sep.	Oct.	Nov.	Dec.
Bass	"	"	"	"	May	Jun.	July	Ag.	Sep.	"	"	"
Breams in general	"	"	"	"	"	Jun	July	Ag.	Sep.	"	"	"
Brill	"	"	"	Apr.	May	Jun.	July	Ag.	Sep.	Oct.	Nov.	"
Cod	Jan.	"	"	"	"	"	"	"	"	Oct.	Nov.	Dec.
Coalfish or Rauning Pollack	Jan.	"	"	"	"	"	"	"	"	Oct.	Nov.	Dec.
Crayfish	Jan.	Feb.	Ma.	Apr.	May	"	"	"	Sep.	Oct.	Nov.	"
Crab	Jan.	Feb.	Ma.	Apr.	May	Jun.	July	"	Sep.	Oct.	Nov.	"
Cockle	"	"	"	Apr.	May	Jun.	July	Ag.	"	"	"	"
Conger	"	"	"	Apr.	May	Jun.	July	Ag.	Sep.	Oct.	"	"
Dabb.....	"	Feb.	Ma.	Apr.	"	"	July	Ag.	Sep.	Oct.	Nov.	"
Dory	Jan.	"	"	"	May	Jun.	July	Ag.	Sep.	Oct.	Nov.	Dec.
Eel.....	Jan.	Feb.	"	Apr.	May	Jun.	July	Ag.	Sep.	"	"	Dec.

TABLE CONTINUED

Flounder	"	"	"	"	"	Jun.	July	Agt.	Sep.	Oct.	Nov.	"
Gurnard (Red)	Jan.	Feb.	"	"	"	"	"	Agt.	Sep.	Oct.	Nov.	Dec.
Hake	"	"	"	"	Apr.	May	Jun.	Agt.	Sep.	Oct.	Nov.	Dec.
Haddock	Jan.	"	"	"	"	"	"	"	"	Oct.	Nov.	Dec.
Herring	"	"	"	"	"	"	July	Agt.	Sep.	Oct.	Nov.	"
Holbut	"	"	"	"	"	Jun.	July	Agt.	Sep.	Oct.	Nov.	"
Horse Mackerel or Scad	"	"	"	"	Apr.	May	Jun.	Agt.	Sep.	"	"	"
Launce	"	"	"	"	"	May	Jun.	Agt.	Sep.	Oct.	"	Dec.
Ling	Jan.	Feb.	"	"	"	"	"	"	"	"	Nov.	Dec.
Lobster	Jan.	Feb.	Ma.	"	Apr.	May	"	"	Sep.	Oct.	Nov.	Dec.
Mackerel	Jan.	Feb.	Ma.	"	Apr.	May	Jun.	"	"	Oct.	"	Dec.
Mary-sole	"	"	"	"	"	Jun.	July	Agt.	Sep.	Oct.	Nov.	"
Mullet	"	"	"	"	"	"	July	Agt.	Sep.	Oct.	"	"
Mussel	"	"	"	"	"	May	Jun.	Agt.	"	"	"	"
Oyster	Jan.	Feb.	Ma.	"	Apr.	"	"	"	Sep.	Oct.	Nov.	Dec.

TABLE CONTINUED.

Peal	"	"	Apr.	May	Jun.	July	July	Agst.	"	Agst.	Sep.	"	Nov.	Dec.
Pilchard	"	"	"	"	Jun.	Jun.	July	July	Agst.	Sep.	Sep.	Oct.	Nov.	Dec.
Piper	Jan.	Feb.	"	"	"	"	"	"	Agst.	Sep.	Sep.	Oct.	Nov.	Dec.
Prawn	"	"	In	Sum	mer	generally	generally	generally	generally	generally	generally	Oct.	Nov.	"
Place	"	"	"	"	Jun.	Jun.	July	July	Agst.	Sep.	Sep.	Oct.	Nov.	"
Pollack or Whiting Pollack	Jan.	Feb.	"	May	Jun.	Jun.	July	July	Agst.	Sep.	Sep.	Oct.	"	"
Pouting or Whiting Pouting	Jan.	Feb.	Ma.	Apr.	"	"	"	"	"	"	"	"	Nov.	Dec.
Queen (P. opercularis)			In	Sum	mer	generally	generally	generally	generally	generally	generally	Oct.	Nov.	Dec.
Razorfish or Hack	In	Sum	mer	generally	but	especial	ly in	Agst.	Agst.	Sep.	Sep.	Oct.	Nov.	Dec.
Ray (Homelyn)	Jan.	"	"	"	"	"	"	July	July	Agst.	Sep.	Oct.	Nov.	Dec.
Ray (Sharp-nosed)	Jan.	"	"	"	"	"	"	July	July	Agst.	Sep.	Oct.	Nov.	Dec.
Salmon	"	"	"	May	Jun.	Jun.	July	July	Agst.	Sep.	Sep.	Oct.	"	"
Scallop (P. maximus)	"	"	In	Sum	mer	generally	generally	generally	generally	generally	generally	Oct.	Nov.	Dec.
Shrimp	Jan.	"	"	"	Jun.	Jun.	July	July	Agst.	Sep.	Sep.	Oct.	Nov.	Dec.
Skate	Jan.	"	"	"	"	"	"	July	July	Agst.	Sep.	Oct.	Nov.	Dec.
Sole	Jan.	Feb.	Ma.	"	"	"	"	"	"	"	"	Oct.	Nov.	Dec.
Sprat	Jan.	Feb.	Ma.	"	"	"	"	"	"	"	"	Oct.	Nov.	Dec.

TABLE CONTINUED.

Surgeon	"	"	"	May Jun. July	"	"	"	"	"
Surmullet	"	"	"	May Jun. July	"	"	"	"	"
Thornback	"	"	Ma.	Apr. May Jun. July	Agt.	"	"	"	"
Trout.....	"	"	"	Apr. May Jun. July	Agt.	"	"	"	"
Turbot	"	"	Ma.	Apr. May Jun. July	Agt.	"	"	"	"
Tub	Jan.	Feb.	"	"	"	"	"	"	"
Twaiie Shad	"	"	"	"	"	"	"	"	"
Whiting	Jan.	Feb.	"	"	"	"	"	"	"
Whilk	{		In	Summer generally	"	"	"	"	"
Wrinkle									
Wrasses or Rockfish in general...	"	"	"	May Jun. July	Agt.	"	"	"	"

OBSERVATIONS
RESPECTING
THE SEASONS IN WHICH FISHES ARE EDIBLE.

FISH AS A DIET.

THE class of fishes presents, in one respect, a peculiarity of striking interest, and of the greatest importance ;—when their position among the higher tribes of animals is considered in a scientific view, and still more, when their great weight in a commercial and economic respect is regarded, the contrasted seasons of their SPAWNING, and, (with a few exceptions) of their consequent periodical *unfitness for food*, must appear a fact of the utmost moment to those whom it thus directly affects. As a matter

of mere passing interest to the enquiring mind, this circumstance must seem remarkable, but, its value is particularly great to those whose merchandise or trade extends to this portion of Creation, or whose common food or daily wages depend on the resources afforded by the "deep." Among the thousands who are supported by the fisheries in a direct way, and even among those of the higher spheres of life who are only occasional purchasers of those species ranking as luxuries, enquiries are continually made as to the present fitness of given sorts for human consumption. Still more is it an object of primary regard with the professed fisherman to make himself acquainted with the seasons during which expeditions after certain species may profitably be undertaken.

However manifest it be that this knowledge is important, it is certain that it is a range of information very imperfectly cultivated, and this condition of it is dependent, on the one hand, on certain anomalies in the economy of this class of creatures, and on the other, on a neglect of facts as they arise in the way of those best fitted by their situations or their callings to observe, and record them. Every man whose occupation is in the vicinity of,

or on "the waters" should habitually note down every circumstance connected with this important tribe which chances to occur to him.

Inhabiting an element of great equality in temperature, fishes are, to some extent, free from the powerful stimulus of summer heat; their systems, are, in respect of the important operations of generation, gestation, and exclusion, exempt from the *common* law which operates so generally on living beings during the yearly return of great heat; and, Nature, ever taking advantage, so to speak, of circumstances capable of being made subservient to important ends, regulates the seasonal return of these proceedings in fishes by a different set of rules. The presence of food suited to the young after exclusion, seems here to be the leading rule, and the various matters acting, in the economy of Nature, in this capacity, in favour of the tribe in question, have been prepared for consumption at very various periods. So that, in the circle of economy, as found in Nature, the different species of fishes have been ordained to spawn just at the times which suit the state of forwardness of those plans ordering the production of pabula adapted to the young when they shall have issued into active

life, and thus the various species become articles of food at very different seasons, the time of spawning being (in general) an interruption to their use.

Fishes, in general, are "out of season," or unfit for food, just prior to, during, and immediately after spawning, this important function, (perhaps happily, indeed, by the design of Providence) regulating the *utility* of the tribe to Man. *Salmon*, *Cod*, and many others become quite useless during this periodical stage of their existence, and perhaps there is no exception to the rule, that every species needs refreshment *after* the performance of this duty. Several sorts however are best as food when heavy with roe and milt, the *Atherine* or *Smelt* for example, depending probably on the flavour afforded by the roe itself; *Pouting* and *Mackarel* are quite good when so circumstanced; *Dabs* are best during three months previously to their immediate spawning time. Fishermen consider that it is because of the small size of the ova in the *Sole* that that fish retains its condition so well, when with roe; this notion, however, is a fallacy,—the ova of the *Cod* are very small, and yet that species loses its flesh, remarkably, during the

spawning time. On the whole, it seems that fishes suffer very differently in their constitutions during the period referred to.

The capture of the more numerous and important kinds is, however, regulated by the mere principle of convenience; *Pilchards, Herrings, Mackarels, Soles, &c.* being tolerably good food when with roe and milt, the fisherman does not judge it prudent to forego the opportunity of a capture, when it happens to him; *limits, however, ought to be set to this practice, so baneful to general interests.*

From the observations of Mr. Couch, it appears that several kinds *spawn at opposite seasons of the year*, though, he inclines to think that this is not transacted by the same individual fishes; this circumstance unexpectedly explains why, occasionally, a fish is "out of season" at a time when the generality of its species are best as food, and which it equally does many irregularities of migrational conduct. Mr. C. has observed this fact in the *Gurnards*, the *Sea Bream*, (*P. entodontus*) *Pilchard*, *Smaller-spotted Dog Fish*, &c. The individuals of some species, also, particularly of the *Cod*, are observed not to conform invariably to their

appointed season of spawning, and thus, as Mr. C. remarks, an occasional fish is found quite good as food while the rest of the species is poor and inedible. Generally, the *Flat-fishes* are poor during December, and yet, very often they are found tolerably firm and well-flavoured in that month.

The different condition of many fishes at opposite seasons is very remarkable, the *Cod*, *Flatfishes*, *Salmon*, *Trout*, *Hake*, &c. for example, but, perhaps there is no case more so than that of the *Skates* or *Rays*,—they are lean and poor during summer, but, at the end of autumn, and during winter, they acquire great quantities of gelatinous material, and become excellent food. Pigs, if fed on them, fatten quickly, and speedily lose any fishy quality by being dieted on other nutriment a short time. The water in which these fishes are boiled becomes a strong, stiff jelly, and may most advantageously and economically be used in many artificial proceedings where glue is needed, as in that of white-washing or whitening rooms. When in their best condition they are neatly prepared and sold at the London Fishmonger's at 2s. per pound; with us, it is banished from the tables of all but the poor, its *abundance* occasioning a prejudice towards it.

The effects of fish on the health, as a diet, especially when out of season, are well worthy of regard, viewed as influencing the community. I am not aware that the *continued use of fish* (if consumed in its healthful state) has any other influence on the human body than that of *somewhat* reducing its muscularity and vigour. On the contrary, when resorted to for a single meal, *if in its unseasonable and impoverished state*, it produces a variety of dyspeptic symptoms—sickness, purging, reduced strength, cutaneous eruptions, &c. ;—families, nay, villages, have been known to be thus affected, from incautiously partaking of fish in its unhealthy condition. Shell-fish appear to produce these effects even more decidedly than true fishes, and I am strongly of opinion, that *Hacks, Mussels, Wrinkles, Whilks, Scallops*, and even *Cockles*, are noxious, at all times, to good digestion. *Oysters* partaken of during summer, or when not exactly in condition, cause indigestion, and are particularly insipid.

CONSIDERATIONS
CONNECTED WITH THE ECONOMICAL IMPORTANCE
OF OUR
FISHERIES.

WHEN we consider the important interests at stake, and the loss sustained by all classes of the community by the present gross neglect to which our fisheries are consigned, it is most clear that some public steps should be taken to secure an observance of those indications which Nature has set up for our guidance in this matter. *No class of men should be permitted to deal as they choose with those interests whence they derive their subsistence. All men are apt to abuse power and privilege, when*

not restrained by wholesome regulations. Hakes, because plentiful and easily accessible in December are captured at will during that month, and yet the most of the females at that juncture are *heavy with the embryo of future progeny.* The young of nearly all kind of fish are captured at caprice, and in *marvellous quantities.* A class of fishermen who employ a sort of nets called Driving nets are permitted to *intersect the shoals of Pilchards,* contrary to an understood law observed by the species, that of keeping together in immense bodies ; the sections into which these companies are thus cut up, wander about, and become the prey of ravenous fishes, or are too inconsiderable in number to be an object to the seiners. Salmon are continually taken when full of large-sized roe, in which ostensible organization has commenced, namely in December, and when really inedible.* Respecting the persons guilty of this unlawful practice a writer says "I would wish them to consider that the Salmon, so taken, would, after depositing their spawn, return to the sea, and, in

* An instance of this presented itself in Plymouth Market, in December, 1842 ; the fish were taken on the Tamar. In January, 1843, numbers were taken on the Avon.

a few weeks, renew themselves, and return again as new Salmon, of increased weight, and excellent flavour. Now suppose, we fix the number at 500 which are annually destroyed, that would have deposited their spawn, and these upon an average, to weigh 16lbs. each, the gross weight would be 800lbs. or about four tons of excellent food, prematurely destroyed. Conceive, also the destruction of spawn in every spawner so taken. I did myself count the eggs in the roe of a Salmon weighing 17lbs. and found the number to be 11,350, which, at the growth of 1lb. each, would have given a quantity of food rather better than 5 tons; at 10lbs. each, 50 tons; and 100 Salmon, of the like weight, would upon the same principle of calculation, give 5000 tons,—a produce equal to 10,000 acres of wheat, at 20 bushels per acre, when in flour at 50lbs. per bushel.” The trawl is still suffered to be employed in all its baneful tendencies without restraint or limitation, and the diminution of the quantity of many species is probably referrible to the continued devastation inflicted by this machine on the economy of the tribe; from January to April this engine is plied on the grounds to which Hakes resort for the purposes of multiplying

their kind, and thus the object of Nature is effectually frustrated, while the food itself so procured is indifferent. There is scarcely a species of fish dealt by consistently, as to natural economy, or even *prudently for human economy*,—all are captured at caprice, and without thought as to consequences. That the appointment of a person or persons to overlook the system of fishing now pursued, should wholly remove every evil, is, I am aware, impossible ; several species seem to perform the function of spawning twice or three times a year, sets of individuals taking it in turn to do so, and in this case a second and third prohibition in the year would be perhaps too stringent, and almost impracticable. Yet it is equally certain that even these species have *one special spawning season* in which the majority of the kind are concerned, and this season should certainly be sacred to the whole.

There may be many laws referring to the fisheries still valid, but, the question is, whether—excepting those which press heavily on immediate interests—*they are attended to, and enforced*, and whether *without a proper officer*, it be possible for the Magistracy to exact a compliance with existing statutes ; to meet these glaring evils a party competent to weigh well

the interests concerned, and to enter rigidly into all the details of the case, should be appointed to superintend, and protect the fisheries, and his duties should be as follows :—

To determine the period in which the species of edible fishes are severally “in season”; to ascertain the period in which each deposits its spawn; to determine when they are most abundant and most available to the fisherman; to ascertain the spots resorted to, and principally selected by fishes at various seasons, embracing their migrations; to determine those plans of fishing the least injurious to the increase of the species; to determine what circumstances interfere at present with the prospects, and well-being of the fisheries, and to point out required alterations likely to promote the general interests for the future. He should further be instructed to accumulate every species of statistical information, and be provided with power to *license* every individual concerned in the capture of fishes, and to watch and superintend their actions, bringing under the notice of the Magistrates those who may be refractory.

It is surely vain for persons to meet these indicated reformatations by an assertion of the present

plenty, the present cheapness, and the present natural arrangement for prolificacy of the class of fishes, and by pointing to the present advantages resulting to the poorer classes and the community at large, from the fisheries, to ask whether the cup of human profit is not full. I would ask such individuals to reflect, that though the market is *generally* well stocked, it is often so indifferently supplied, that, those who are compelled to economise their meals, cannot, on such occasions, purchase fish *as a cheap diet*, it having then attained the same or a greater value than butchers' meat,—that, a systematic supply to the back country has, from inadequate means, never been undertaken,—that, the natural arrangement for prolificacy in the tribe, cannot withstand the present devices for capture, many species having of late years greatly diminished in numbers. * — that

* It should be understood, that, we are not to estimate the arrangement for increase of fishes by the number of ova; these perchance may all come to life, but at an early stage of existence great numbers of them are the appointed diet of others.

although a large number of the poor are now maintained by the fisheries, a larger number are always in need of occupation,—that the community at large is ever greatly in want of means of domestic economy beyond its *present* advantages,—and, that, an enlarged foreign trade in “cured fish,”—being the surplus produce, if any,—might most profitably be undertaken.

One other item coming under the present head is the importance of affording protection to the species of fishes and other creatures forming the diet of those with which man is so immediately concerned. The operation of fishing, taken generally, interferes in the slightest way with the creatures in question, as they are so seldom drawn forth from their element; the employment of the Trawl, however, during a long series of years, must assuredly act with the greatest prejudice towards these races. Dragged along with force over considerable areas of marine bottom, it tears away promiscuously, hosts of the inferior beings there resident, besides bringing destruction on multitudes of smaller fishes, *the whole of which, be it observed, are the appointed diet of those edible species sought after as human food.* It also disturbs and drags

forth the masses of deposited ova of various species. An interference with the economical arrangement of Creation, of such magnitude, and of such long duration, will hereafter bring its fruits in a perceptible diminution of those articles of consumption for which we at present seem to have so great necessity.

Locking at this question in the light of required humanity to the brutes, we might suppose the species thus injured by an abstraction of their food, to utter some such expressions as the following :—

“ Nay, take my life, and all, pardon not that :
You take my house, when you do take the prop
That doth sustain my house ; you take my life,
When you do take the means whereby I live.”

Notwithstanding the recklessness of human proceedings relative to the capture of fishes, the *continued supply* through the year, the *great variety* appointed for man's purposes, and the *amazing quantities* of some sorts which come so seasonably to the aid of poverty, are subjects which demand our admiration, as instances of Divine Providence.

A few months of the year are more favourable than others to the procurance of this food, especially July, and the Autumnal period, but, no month is without its supply, and even its *particular features* of economical provision. Above fifty species referrible to about fifteen families or tribes, are partaken of as food in the South Western Counties of England, exclusive of sorts which are edible, but extremely rare. Many kinds are taken in prodigious numbers, especially the Pilchard, the Herring, the Sprat, the Mackarel, the Sole, the Hake, the Cod, the Gurnards, the Skates, the Mulletts, the Conger, the Whiting, the Pollack ; most of these, also, from their redundancy, become either articles of commerce in a fresh or "cured" state, or are set by as a provision for winter need, by the poorer classes.

Herrings and Sprats have occasionally been so abundant, as to be used for manure. In January, 1832, above a ton weight of Sprats were sold in Taunton Market, in one day, for food. Respecting the abundance of Hakes, Mr. Couch records, that, 40,000 were landed in Mounts Bay in one day, and, that a single boat has in two nights taken 1,100. Off Plymouth, in the space of one week, at the end

of November, and beginning of December, 100,000 of Hakes have been taken, and sold in the three Towns adjacent; these, it is thought, were in pursuit of Pilchards then off the coast; in December and January, 1842—3, 60,000 were taken by the trawlers, and brought into Plymouth. This species is evidently *the most valuable of all in our fisheries*, owing to its abundance, and excellence as food; a maund is considered to contain 200 lbs., and, allowing a reduction of one third for useless parts, the remainder will sell commonly at less than a penny per lb. while in cases of great plenty it will fetch less than a half-penny the pound. When extremely plentiful, a maund will sell for as little as eighteen or twenty-pence, while, at periods of scarcity, a single fish may fetch as much as nine-pence.

The prolificacy of edible fish is a subject fitted, for the most evident reasons, to call forth our wonder and thankfulness towards a beneficent Providence; Leuwenhoek the physiologist, counted 9,384,000 eggs in a Cod, 36,960 in a Herring, 38,278 in a Smelt, 546,681 in a Mackarel, 225,568 in a Flounder, 1,357,400 in a Plaice, 100,000 in a Sole, in a Carp 3,686,760, and in a

Tench 300,000. Man, however, too commonly comes to the erroneous inference, that these are provisions, in the bounty of which, he alone is interested; on the contrary, the dainty and plentiful supply of Salmon is partaken of by Otters, and ravenous fishes, and Porpoises seem, every autumn, to visit harbours and estuaries in pursuit of them, in their upward migration; Trout are feasted on by Otters, and many carnivorous fishes; an Angler or Fishing Frog has been found with 22 Trouts and 2 Eels in its stomach; several kinds of Cetaceans prey eagerly on the shoals of Herrings, Pilchards, and Mackarel; I have found in the stomach of a Cod, on one occasion, several Flat-fish and a large Labrus; and, on another, several Gurnards, Whittings, and young Congers. In regard also of many kinds, inedible by man, their fecundity is to be understood as serving the lives of edible species, or the general ends of Nature's Economy; thus, the Stickleback consumed by Trout and many other eatable fish, and the prime support of Herons and other birds towards autumn, is provided with more than 100,000 eggs; the Minnow, also, a prolific species, is consumed by Trout and other larger fish,—46 Minnows

have been found in a Trout weighing only one pound and a half.

Unlike the soil, which exacts tribute from us for every crop and product which it yields, requiring a continued tillage, and untired solicitude,—unlike the solid rock, which demands a laborious and ingenious pursuit of its hidden treasures of mineral, the sea needs but little expenditure of human toil and watchfulness to render it wonderfully available to the necessities of mankind, and seeks *no return* at our hands; it asks only, in the eloquence of Nature's laws, that we do no violence to the *Economy of Creation*, and thereby disturb the great system of Providential care. Man, even in his present state of civilization and intellect, has but slight information of the resources provided for his maintenance in the great storehouses of bounteous Nature, and, here, even in the small circuit of an inconsiderable tract projecting itself into the sea, we find the means of supporting life spread out before us to an astonishing amount,—A SUM OF HUMAN FOOD EQUAL TO LITTLE LESS THAN A MILLION OF MONEY DRAWN FORTH ANNUALLY FROM THE WATERS! Would to God we might no longer proceed in

defiance of Providence when taking advantage of His gifts, but learn, in humility, to act conformably to those decrees He has established in His inferior works, and thus *to increase ten-fold* the possessions we inherit. Let us bend ourselves to take a lesson from the ways of Nature, for they indeed do

“——whisper truths in Reason’s ear,
If human pride would stoop to hear.”

MIGRATIONS OF FISHES,

AS OBSERVED IN

DEVON AND CORNWALL.

LIKE the tribe of birds, fishes, though inhabiting a medium of totally different properties from air, and one having the peculiarity of possessing great uniformity of temperature, are found to display many acts of migration, and casual movements in conformity with pressing wants or special objects of their being : their entire economy is altogether influenced by a range of circumstances very analogous to those contingent on the lives of other highly organized animals. Many, though truly native to

our shores, pass for a season to the greater depths, and there reposing, during the period required for the operation of spawning, seem to have wholly departed from us to some other clime. A separation of the sexes is noticed in a few kinds, their respective functions indicating a necessity for a temporary observance of this conduct. Some species influenced by an instinct prompting them to deposit their spawn in the gravel or mud of embouchures, or to seek some particular food, engage in temporary sojourns in these localities. Some, requiring spring water as the medium for conveying stimulus to the vitality of their ova, repair at stated times to those spots, passing from the depths of the greater saline waters to the estuaries, and thence stemming the current of rapid mountain rivers for many miles, to the springs and rivulets at their very sources. Vagrancy seems to be the characteristic of many sorts; they roam heedlessly as it were, from one sea to another, pursuing the main calling of their lives, the satisfaction of hunger, entering harbours and quieter waters only to deposit ova, or to take sanctuary from the fury of the tempest. Some few fishes of many shores,—and the remark applies to our own,

—belong as it were to the system of some other region, and from which they have either incidentally wandered forth, or of which they are the natural representatives on the principle of appointed geographic range. The excursions and wanderings of a few are very limited ; while others again are, so far as we know, absolutely stationary. The movements of the fry, and young of many species, present observable peculiarities ; influenced by a selection of food especially suited to their growth and development, they quit the spots where first they issued into ostensible being, and pass in playful migration to others more congenial to immediate requirements ; the margin of the tide in harbours and estuaries is, in this respect, a favourite resort by the shoals of many kinds of young, in all probability, on account of the small insects which abound, especially during the height of summer, and during autumn, among the sea weed, rocks, and stones of the shore. Most of the captures by fishermen on the rocks, by the “hook and line,” at those seasons, consist of immature fish, which had visited the shore on the errand just named, such as the young of the *Wrasses*, of the *Conger*, of the *Bream*, &c.

The following table of movements executed by fishes chiefly of our own coast, from the impulse of *merely one object, that of spawning*, will exemplify the great diversity of operations existing with the limits of the economy of this tribe. Very few species can be quoted in consequence of our general ignorance of the habits of the class.

Methodus

OF THE MIGRATION OF FISHES OF THE SOUTH-WESTERN COUNTIES

IN REFERENCE TO

THE OBJECT OF SPAWNING.

Ascend rivers, from the sea, to spawn.

Salmon

Bull-Trout

Peal

River Lamprey ?

Descend from rivers, to the sea, to spawn.

Eel (a portion of the species)

*Ascend estuaries, and the saline parts of rivers, from
the sea, to spawn.*

Pogge	Alice Shad
15-spined Stickleback	Unctuous Sucker
Twaite Shad	

*Pass from the shallow water, to the deeper sea,
to spawn.*

Cod-fish tribe (Gadidæ)	Sea Bream
	Pipe-fishes

*Enter harbours, and pass to the shores generally,
from the sea, to spawn.*

Mackarel	Sprat
Mulletts (two kinds)	Tunny
Lampfish	Wolf-fish
Pilchard	Wrasses
Basse	Conger
Herring	Flat-fishes
Four-toothed Sparus	Skates
Dusky Serranus	Sharks

It is surprising how large a number of the fishes of our South Western Shores are *natives of Southern Europe, of the Mediterranean, and the Tropical Shores of Asia, Africa, and America*; they either belong to us in sparing numbers, or accidentally wander hither. Not fewer than *thirty* species, truly natives of warmer countries, are at times captured on these coasts, and a more limited list of visitors, *natives of high latitudes*, have been observed on the northern shores of Britain, so that the Catalogue of British Fishes is greatly swelled by what we casually derive from other countries or by the extended geographic range of certain kinds.

We, moreover, at the South Western portion of the Island, projecting as it does into the Ocean, derive much from the circumstance of several large areas of water being here confluent, the finny inhabitants of each reaching either through appointed range, or accidental migration to this central spot. We enumerate at least 174 species as natives of the South Western Sea and Rivers, and of this number, about 27 are, so far as known, *peculiar* to these counties.

*Irregular Migrations observed in some of our
Native Fishes.*

THERE are several species of fish whose migrations are extremely capricious, and this circumstance is noticed more frequently among the *Clupæidæ*, or Herring tribe, than any other family. It has in some years happened, as in 1786 and 1787, that no *Pilchards* have been taken off our coasts,—in other years they are very scarce, while generally they are abundant. They sometimes appear off the Devon Coast before visiting their own peculiar locality the Cornish bays, the reverse conduct being usual with them. While their customary assembling is in August and September, they sometimes arrange it in July, or defer it till the end of the year; they sometimes also *again* congregate in March. The fishing season is usually over by November, but sometimes, as in 1840 and 1842, they have been taken in December, and in the present year, they were taken on the Cornish Coast, particularly at Looe, in January.

Herrings are often noticed to be very variable in their movements ; while their usual visit to us is in August, September, and October, they have in some years, as in that of 1841, crowded to the harbours in the end of November and December, when heavy with roe. In 1842 a considerable catch occurred off Plymouth, in the second week of December, consisting of males only. These were very tolerable as food. In January of this year, a few were taken off Plymouth ; these were lean and poor, having probably just spawned. *Sprats*, whose appearance with us is usually after the Herring season, often arrive in the end of September, and mostly, the two species are on sale together for several weeks. This fish has been regarded by some as the forerunner of Herrings, while in most localities it *succeeds* that fish.

Summer is the usual season in which *Mackarel* are taken, but they sometimes reappear in October, and generally in December and January, as occurred in 1841-2, and 1843 ; and very frequently also in March.

Lings, Hakes, Whitings, and Conger, &c. also frequently make unusual, and even inexplicable migrations, besides, also, frequently assembling, as

if impelled by some great emergency or important object. *Red Mullets, Soles, Grey Mullets, Basse, &c.* sometimes congregate in extraordinary multitudes, the two first to such an extent as to be even a temporary encumbrance to the captors.

*Table of the Migratory Movements of the Salmon
and the Peal in certain Rivers.*

	Salmons ascend in ~~~~~	Peals ascend in ~~~~~	Fry of Salmons descend to the sea in ~~~~~
TAMAR ..	August to early part of Decem.	April to July included	April
PLYM....	Oct. and Nov. and on to mid- dle of Decem.	June and July	April
YEALM ..	Septem. to Jan. included	End of May to Aug. included	April
ERME....		Ditto	
DART....	Septem. on till January	July and Aug.	Fry of Peals in Jan. & Feb.* of Salmons in April.
AVON....	Beginning of September to	End of May † to September included	May
EXE	_____ to end of December	_____ to end of December	
TORRIDGE			May
FOWEY ..	Aug. to Decem. included		
CAMEL ..	November and December		

* Rev. W. F. Cornish, Correspondent.

† Lt. Taylor, Correspondent.

Somewhat in conformity with the differences remarked in the migratory conduct of Salmon in different rivers, the "Fence Days" (time during which it is unlawful to catch them) appointed by the Justices, in Quarter Sessions, vary also, thus, for the Tamar they extend from November 1st to April 27th, and for the Fowey, from December 15th to May 1st. On the Exe, the Salmon fishery begins January 21st, and ends September 20th, while, on the Teign, it is extended to December 5th.* Formerly, no restrictions as to time were imposed, on the taking of Salmon in the estuary of the Plym, and they were very commonly taken when heavy with roe in a perfect state. Lord Morley has now, for the security of the fishery, introduced a limitation on that river. They are, there, found full of large roe from the end of October, to the end of December. To give that protection to the species, and to human economy which is desirable, the month of *October* should in every instance be included in the "Fence Days"; under such an extension, the fish, laden with spawn, and passing up the rivers to effect its deposit and guardianship, would multiply tenfold,

* Mr. Ross, of Broadway House, Topsham,
Correspondent.

while now, the present practice is tending to sap the very basis of the appointed fecundity of this valuable species.

The variation in the season of upward migration in different rivers is considered to depend on the depth of the stream, that circumstance conferring a higher temperature, proportionably, and thus, about to change their residence from the sea, whose depths are greatly warmer than river water, and about to occupy this colder medium, at a colder season, they enter the shallower and more rocky rivers later than others : while they are passing up some rivers through the summer, they do not ascend others till autumn, and the beginning of winter. This rule admits of sparing exemplification in these counties where the rivers are so uniform in character; it will be observed, however, that Salmon do ascend our deeper rivers, the Tamar and the Yealm, earlier than others, the stream of migration enduring throughout the closing months of the year, and encroaching on the following year. In the deep northern rivers, as the Tay, they ascend very early, and in the end of September are busily engaged, in general, in the work of spawning. Great numbers seem to crowd

towards some of our estuaries, in October. Besides, in the Fowey, as mentioned by Mr. Couch, a second run of fish, males and females (with roe), occurs in the Plym and Avon, in the end of January and February. Before the bank of mud and sand, which occupied a large area of the Erme's mouth, was washed away, it was a scene of much animation to watch the capture of Salmon, in the autumnal months, in a pool called the "Salmon Pool," just above this tract; great numbers, occupying for a few days prior to their ascent the brackish water of the estuary, were here speared, and devoted to the table. This practice of *spearing* is illegal.

The adult fish having spawned, from the end of November to February, (the period varying in *different rivers*, and in *different individuals*,) at, or towards the sources of rivers, descend in the end of winter and the earlier spring months, and are then wholly unfit for food; they pass to deep sea water, and are soon again in season, entering the mouths of rivers, in July, August, and September; some in June, or even in May, in company with, or just in the rear of young fish of that year. The season of fishing commences, in most rivers, on the arrival of the fish at the river mouths, and they

continue to be excellent food on to October, and in one or two rivers, the Fowey for example, even to November, when the roe is *small*; but, after this has attained towards its perfect size, the flesh becomes soft and watery. The presence of insects on their bodies, called "Sea Lice" is an indication of the excellence of their condition, and indeed, they are thought to be best as food, when taken prior to entering fresh water. In dry seasons (as occurred in that of 1841,) they continue longer in the estuaries, aware, through some instinct, of the want of sufficient fresh water to enable them to ascend to their breeding places. Experienced fishermen observe that Salmon will ascend rivers mostly during rainy weather, when the water is thick, while on the contrary, Peal prefer to migrate upwards during fine weather, with clear water. This seems to indicate a decided difference of food in the two species.

The ova of Salmons sometimes amount to 20,000, yet, with us, both this species and Peals, have of late years, become greatly reduced in numbers. It is related, that Salmons were, a century ago, so plentiful, that a law was enforced, forbidding masters to give this diet to their apprentices above

three times a week. Old indentures recite this. But, though this story is stated to have reference to our counties, and especially to Exeter, it is thought to be common also to Salmon countries, generally in England.

About three weeks are occupied in the descent of Salmon Fry, in most rivers, and they linger many days in the brackish water; great numbers are taken during their seaward movements, not only by the fly, but by farmers and millers who intercept them by baskets laid in the streams at convenient spots; by the end of July, these young are about a pound in weight, and have much of the appearance of Peals.*

Not only do Salmon Peals ascend our rivers earlier than the Salmons, they also spawn earlier, and in the Dart,—perhaps in *all* our rivers,—the fry, (termed "*White Fish*,") descend in January, February, and March, being then larger than

* Vary from 7 oz. to 1 lb. and $\frac{1}{2}$; the average weight, 10 oz. In 1842 they were unusually large, (Mr. W. Bentall, Correspondent.)

Salmon fry.* The old fish descend, probably, about the same time ; on January 23rd, 1843, I obtained one from the Tamar ; it was highly impoverished, a mere remnant of the roe discoverable, the flesh white, and nearly tasteless.

The Parr (*Salmo Salmulus*) known to our fishermen by the name of the "*Hipper*," has been taken on the Avon, and the Plym in the month of September, † and is recognised under the same title on the Yealm and the Dart.

* From a quarter to a half-pound, (Rev. W. F. Cornish, Correspondent.) Two and half, three ounces, four ounces, rarely half-a-pound, (Mr. W. Bentall, Correspondent.)

† Mr. J. White, Plymouth, Correspondent.

STATISTICS.

PRINCIPAL FISHING TOWNS OR STATIONS

OF

DEVON AND CORNWALL.

St. Ives.

Mevagissey.

Newquay.

**Penzance, Mousehole, Newlyn, Marazion, and
Mount's Bay generally.**

Sennen., with St. Just.

Looe (East and West)

Padstow.

St. Agnes and Perran.

Portreath.

Helford.

Fowey and Parr.

Brixham, Torquay, Paignton, &c.
Plymouth and Devonport, with Cawsand,
Saltash, Newton, &c.
Bideford, Barnstaple, and Clovelly
Falmouth and St. Mawes.
Stratton, with Bude Haven generally.
Ilfracombe, Coombe Martin, and Helford Coombe
St Mary's in Scilly.
Topsham and Exmouth.
Dartmouth.
Sidmouth.
Slapton.
Salcombe and Kingsbridge.
Polperro.

In relative importance, Cornwall ranks, in respect of fisheries, far above Devonshire, its advantage being derived from the immense profits secured by the sale of Pilchards. Viewing the fisheries respectively of the produce from that species, Torbay ranks as a station above all the others, there being there not fewer than

165 Trawlers,

20 Hookers and Seiners ;

of the Trawlers, 25 are Yawls, the others large

decked Sloops. Their seines are put in requisition for Herrings, and occasionally for Pilchards. The Port of Plymouth ranks next to Torbay. Next to Plymouth stands, I conceive, Bideford with Barnstaple and Clovelly, and Ilfracombe with Coombe Martin and Helford Coombe, at which last place about a dozen small Trawlers of 15, 18 or 20 Tons burden are worked.

The small town of Polperro in Cornwall is a highly successful fishing station ; dealers arrive there from Launceston, a distance of many miles, and carry much of the produce to their market.

A few small Trawlers, originally designed for the Fowey and Polperro fisheries, are, I believe, no longer worked at those places, the harbours not being sufficiently safe and commodious for their proceedings. The Exe, on the same principle, having a bar at its entrance, has no Trawlers on it. A small number are kept at Falmouth.

PILCHARD FISHERY.

THE following statements afforded me by Mr. Yarrell's "British Fishes," relative to the Pilchard Fishery in Cornwall, during 1827, is valuable statistical information :

Number of seans employed	186
Not employed	130
Total number of seins	316
Number of drift-boats	368
Men employed with ditto.	1,600
Men employed with seins <i>at sea</i>	2,672
Persons <i>on shore</i> directly employed in the fishery	6,350
Total number of persons employed in the fishery	10,521
Cost of seins, boats, &c. in the fishery	£209,840
Cost of drift-boats and nets	£61,400
Cost of cellars for curing, and other establishments on shore for carrying on the fishery	£169,175
Total capital invested directly in the pilchard fishery	£441,215

Outfit of a sein costs about	£800
A string of drift-nets costs about	£6
The nets and boat from	£100 to £150

In reference to pecuniary proceeds, I quote from Mr. Burt the following statement referring to the Mevagissey fishery, in 1813 :—Eleven thousand hogsheads of Pilchards were caught, which, at £3. 3s. per hogshead, including the bounty,* were worth, after pressing, £34,650. To this sum was added £7,200 for 200 tons of oil, making £41,850, and deducting 20s. per hogshead for entire expenses, allowed a balance in favour of the parties concerned of £30,850. Again, the St. Ives fishery of 1842 yielded 18,000 hogsheads of fumadoes for exportation. Other undertakings have not been equally prosperous; the profits accruing to the fishery at Borough Island, though in its first years tolerable, have of late gradually disappeared; the speculation for the last eight years has been a complete failure, and part of the stock has been sold off. Two cellars with their establishments yet remain at

* This, however, a Government allowance of 8s. 6d. per hogshead, is now withdrawn. It was designed as an encouragement to the fishery.

Challaboro', but their *profits* have of late ceased. A company of gentlemen, resident, chiefly, at Newton Ferrers, formed for the prosecution of this branch of fishing, has been dissolved. Pilchards exported to Leghorn, in 1813, fetched nine guineas per hogshead, of 52 gallons, independent of the oil. A sawing mill, for making staves for the casks in which fumadoes are exported, has been established at Yealm Bridge for about five years, the cheapness of timber in that neighbourhood favouring the undertaking. The fish "in bulk" are shipped to the Mediterranean Ports, to France, Spain and Portugal generally, to Madeira, Teneriffe, &c. Sixty thousand hogsheads (each of about 3000 fish) have been taken in Cornwall in one season, and there is record of a catch of from 40 to 50,000 in one week. A small proportion is sent to Wales, Spain, &c. in the *salted* state.

ECONOMICAL USES OF SOME FISHES IN
ADDITION TO THEIR COMMON
CONSUMPTION.

PILCHARD.—Salted, preserved as “Fumadoes,”
and baked with spices and vinegar,
under the denomination of Potted or
Marinated Pilchards.

MACKAREL.—Salted, and also, occasionally, mari-
nated.

LING.—Salted and dried in great abundance, chiefly
at Scilly, and sent, thence, to various
towns in the two counties.

HAKE.—Salted and dried, and sold in the markets
in winter; also sent “in pickle” to
Wales and Spain.

WHITING.—Salted and dried, and in winter sold
in the markets under the name of
“Buckhorn.”

COAL-FISH OR RAUNING POLLACK.—Salted.

HADDOCK.—Salted and dried, when procured in sufficient quantity.

POLLACK.—Salted and dried.

COD.—Salted and dried, and sent to the various towns to be sold in the grocer's shops.

HERRING.—Salted (occasionally). When thus prepared they are called "White Herrings."

CONGER.—Both dried and salted, and baked in vinegar; the latter preparation is called "Soused Conger."

SKATE (*several species*).—Salted and dried.

SALMON.—Baked in vinegar, and called "Potted Salmon;" and salted and smoked dry.

DOG-FISH (*two or three species*).—Salted for winter use in the western parts of Cornwall, where also, when fresh, they are used to make "Morgay Soup."

DAB AND FLOUNDER.—Salted and dried, when sufficiently abundant.

LAUNCE.—Salted and dried for winter use.

COCKLES AND OYSTERS—are, both, pickled in vinegar for future use.

SOUNDS AND TONGUES—are the salted air-bladders

of Lings, Cods, and Hakes, but, the generality sold here are those of the Newfoundland Cods.

The livers of Hakes are, when a lot is being set by, and prepared for winter use, boiled, in order to extract the contained oil, which is sold to Shipwrights and Blacksmiths, at the rate of eighteen pence per gallon. I do not know that this practice is *universal*, but it is a source of slight profit to a few of the poor.

The oil of the Cod's liver has been found particularly serviceable in some hospitals and dispensaries for the cure of Rheumatism, but I am not aware that it has ever been introduced in Devon or Cornwall for that purpose.

The train oil expressed from "fumadoes," together with the offal fish and salt, is set by for manure, and some is consumed for the preparation of a coarse paint, or for covering boarding exposed greatly to the weather. Many cottages in the Cornish fishing towns are formed of thick boarding, and these have often a coating of fish oil.

Sprats, and Herrings, when accumulated in redundant quantities, are set by for a manure, mixed with other less stimulating materials.

CONSIDERATIONS RESPECTING PROFITS.

THE profits accruing from the Fisheries of Devon and Cornwall may be thus roughly estimated ;—say one fourth of the families of the two Counties* profit, each, per year, by the consumption of fish as a diet, the sum of £2. 10s.—say there are 16,000 families immediately sustained by the manual labour of the fisheries,† each thereby acquiring a livelihood equal to £30 per annum, from which £5 is to be deducted, for expenses incidental to the nature of the work,—say there arises as a profit to the various trades concerned in supplying

* Census, 1841.—Devon 533,734, Cornwall 341,317. These numbers added together may be divided by 5, as the average number of a family.

† The population of Great Britain includes 150,000 fishermen. (Stevens' Tide Table for Plymouth, 1843.)

materials and labour requisite for the fishery, the annual sum of £83,000,—say the annual profit of the Pilchard fishery amounts to £240,000, that is, allowing £30,000 as an average annual income to the inhabitants of eight different stations,—say the profit to the Owners of Trawlers is £9,800, at the rate of £40 a year to each of 245 Trawl boats, deducting for every outlay, the general sum will then be reached as under ;—

Profit to the community by consumption of fish as a diet, equal to	£109,385
Livelihood to the poorer orders of fishermen, equal to	£400,000
Profit to various trades concerned in providing labour and materials for the fisheries	£83,000
Profit to the speculators in the Pilchard Fishery	£240,000
Profit to owners of Trawl Boats	£9,800
Total Profit to the two Counties, clear of drawback, for one year..	<u>£842,185</u>

These are not all the profits derived ; there are the advantages of the trade in dried fish, and other like products, the advantages to those who navigate

the vessels conveying Pilchards to other Countries, the profits of the Crab and Lobster fishery, the rents of rivers, the sale of fresh fish, especially Mackarels, Herrings, and Pilchards to the French, with the profit of their living while staying in this Country,* the sale of the same to dealers in this Country, the profits derived by fishing to those who prosecute it as an amusement, and so forth. Indeed, I have intentionally refrained from making any statements except those which the *lowest estimates* will justify.

“For more than a century,” records Mr. Burt, “the Dutch loaded, every year, a thousand decked vessels and upwards, out of the northern shoal of Herrings. While this fishery flourished in their hands, it annually drew from the ocean washing the Shetland Islands, some millions sterling, and employed 400,000 persons.” At other places, Mr. Burt adds that “it has been computed that the whole of the fish taken, bears no larger a proportion to the

* Large Sums are advanced to the French fishermen, while staying with us, by the French Consuls. These transactions are effected by bills of credit, and a payment to the Agent of 2½ per cent.

number actually existing in the northern seas than *one to a million*. In 1767, this fishery supported more than 100,000 persons in Holland. Huet valued the annual produce of the fishery at 25 millions, of which, 17 millions were clear gain. Doot affirms that in 1688, this Herring fishery and its concerns employed 450,000 Dutchmen."

That class of fishermen whose occupation is followed in vessels of sufficient size to undertake short voyages, avail of this by passing from their own homes to other coasts, for short seasons. Thus, many of the Cornish fishermen increase their means, by passing over to the Irish Herring fishery, prior to the commencement of their own. The Brixham Trawlers frequently go westward to the Plymouth and even to the Cornish trawling grounds, and, many of them constantly resort to the shores of the South Eastern Counties to prosecute a branch of fishing there little understood. The Drivers of Cornwall often appear in the Plymouth offing in quest of Herrings, Pilchards and Mackarels. Again, it has latterly been the practice of the Drivers of Brighton, Hastings, Shoreham, &c.—in Luggers, (generally of large size) each with a string of drift nets reaching nearly three miles, and

costing from £100 to £120,—to resort to Plymouth during the Mackarel season and prosecute that fishery ; in January and February of 1842 and 1843, a hundred, or more, of these Luggers came to that Port, each with about six or seven men. The advantages to localities, accruing from these general movements of large bodies of men, may be balanced where places reciprocate them, or may be, in some instances, greater than the loss, as with Plymouth ; but, the main consideration is this, that by such proceedings, a far larger profit *is extracted from the sea*, than could otherwise occur. Trawlers, Seiners, and Drivers, embody themselves into “clubs,” respectively ; in cases of misfortune, they are aided by general contribution from the others, and their bodily movements are determined by consultation and decree.* The first catches of

* As respects the moral and political condition of fishermen in general, I must record that both are of the worst possible description, strongly demanding investigation. The first step towards moral improvement, is social amelioration ; the first step towards the amendment of the social state, is legal restraint. Vain is the attempt to better the moral and social interests of mankind generally by an *abrupt appeal* to the religious sentiments.

Mackarels effected by the Drivers at Plymouth, commonly fetch 30s. per hundred, and the purchaser generally sends off the entire lot to London. Herrings caught in their impoverished state, called "Shot Herrings," and rejected by us in these Counties, are also frequently sent off to the same Mart, well rewarding the speculator.

TRADE OF THE PORT OF PLYMOUTH.

It affords me no slight pleasure to be enabled to report a reviving disposition in the Port of Plymouth to profit by the productions of the sea to a larger extent than heretofore, and to be in a position to shew, by the data afforded me by Mr. Burt's "Review" of the Commerce of the Port, published anno 1816, that a very large increase of speculation has, in the interval, grown up: —

Mr. Burt, writing in August 1814, says, that there belonged to the Port 27 or 28 Trawl boats; there are *now* 62.

Mr. Burt, writing at the same date, says the deep-sea fishery by hook and line comprehended 16 or 17 boats; the same department *now* includes, in

the *Town* of Plymouth alone, about 40 boats, with about 20 others in addition, when they are not employed in the Herring fishery.

Mr. Burt makes no mention of the existence of Driving boats; a large number, however, are *now* maintained in the Port, for taking Herrings, Pilchards, and Mackarels.

Mr. Burt observes that "no regular Herring fishery has existed within the Port for many years;" a somewhat extensive undertaking, however, commenced last year, by about 20 boats being fitted out for the purpose. The prospect is manifestly good; Mr. B. observes, that the renter of Catwater obtained in one year £1,200 by this fishery; on the same tract, a large sum was made by the present renter, in 1841.

TRAWLERS.

The trawl boats of the Port,—62 in number—are, for the most part, decked sloops of 40 or 50 tons register, but, 5 of them are Yawls not exceeding 18 or 20 tons burden. The trawl beam of the large vessels is about 40 feet long, and that of the Yawls is about 30 feet. Trawl owners now

incline to think that a trawl sloop of about 35 tons, while it costs less, will effect as great a profit as a larger sized one; in addition also to this reduction of size, it is becoming usual to build vessels of less bulk and swifter passage, which thereby are capacitated for "piloting" at the same time, the two lines of business being frequently combined. Trawl proprietors are usually tradesmen, or pilots who have been able to lay by a few hundred pounds from their earnings. Trawlers are managed by three men and a boy. A Sloop of the largest size will cost about £500, including the net with fittings, which itself costs 40 or £50. The owners of Trawlers are licensed at the Custom House, and, their vessels are entitled to all the protection given to ships of the greatest magnitude. The Yawls, before properly established as Trawlers, from the want of capital, employ themselves as Hookers, or combine both occupations. A trawl boat is not *insurable* property, in the common way, except at a very heavy rate; the Trawlers' Club, however, established at Brixham, undertakes to insure the boats to the extent of £250. The supply of fish brought to Plymouth market is mainly the produce of trawling, but, it is deeply to be regretted that this species of fishing should be

conducted by men of such reckless proceeding. Vast quantities of *fish in their worst conditions*, great numbers, especially Hakes, Congers, and Flat-fish, *laden with spawn*, and a still larger quantity of *young fish*, particularly the Gurnards, Pouting, Haddock, Breams, &c. are continually abstracted from their element to do only a temporary negative good to the community,—not to speak of the great proportion *consigned to the manure heap*, while the stock itself is thus materially injured. The common produce of the trawl, in winter, consists of Gurnards, Mary-soles, Plaice, Thickbacks, Soles, Whiffs, Brills, Hakes, Rays of several kinds, Poutings, Whitings, Scads, Dorees, &c. ; all taken in 30 or 35 fathoms.

It would be a very important improvement in economy, could measures be taken to compel the Trawlers to fish in smaller companies at a time, and in turn, and thus to give a more regular, and less redundant supply to the fish-market.

SEINERS.

Our Seiners are not numerous, but, at Cawsand, there are 7 Pilchard seins conveyed in boats of 15 or 18 tons, and 5 Mackarel seins (with smaller boats)

used in May and June. There are seins also at Saltash. The Drivers, also, very commonly carry a *small* sein for the same fish, when met with in large companies. At Challaboro' (not included in the Port of Plymouth), there are seins for Pilchards and for Mackarel. A Pilchard sein, such as there used, costs from £30 to £40.*

DRIVERS.

Although those who here practice driving excuse themselves by saying that our bays are, unlike those of Cornwall, too contracted for their purposes, it rather appears that it is, with us, a timid and experimental proceeding. A string of nets does not exceed in number, three or four, or at most, seven or eight, and these small. The cost of a boat and nets is from £30 to about £84. The crew of a driving boat is either four or five, and, these parties club together, and share the proceeds; they fish for Pilchards, Herrings, and Mackarels. There are at Cawsand about 40 drift boats, at Plymouth, about 6, at Turnchapel, 3. A boat at Cawsand has been fitted out like an Eastern Lugger.

* Lt. Taylor, R.N. Coast Guard, Correspondent.

The fishery, as existing in Devon, is thus seen to be, in great measure, contrasted with that in Cornwall. Trawling is the main feature of the Devon fishery, while seining and driving are the characteristics of the Cornish. The Hake is, in Devon, principally taken by the Trawl, but, in Cornwall, it is captured by the hook and line.

The greater part of the more valuable sorts of fishes, captured in the Port of Plymouth, are sent, by coach, to London, Bristol, Bath, and Exeter, namely, Soles, Turbots, Sturgeons, Surmullets, Salmon, &c. besides a portion of Pilchards, Herrings, and Mackarels. The Steamers convey large quantities of Hakes, and other fish, to Portsmouth weekly. The Trawlers themselves often convey quantities of Hakes to Portsmouth, and, vessels are often sent across to Jersey, and other Channel Islands, with Mackarels, Herrings, Pilchards, &c. The French convey away a deal of our Congers, Hakes, Skates, Pilchards, Herrings, Mackarels, &c. periodically, besides maintaining with us a regular trade in Crabs, Lobsters, and Crayfish, giving on the average 6d. a piece for these ; they purchase

Mackarels partly for sale in their own country as food, and, partly for "salting in" as bait for the Cod in their Newfoundland fishery. Not only is the *immediate* neighbourhood supplied with fish from our fishery, but, a large supply is taken in carts to all the surrounding villages and towns, including Tavistock and Launceston, which receive a quantity two or three times per week. This dealing forms the support of a great many persons.

Our fishermongers, generally, habitually salt their surplus quantity of Hakes, Skates, and Congers, and it is, I apprehend, from these stocks that the French dealers, coming hither, make their purchases. Only one individual in Plymouth undertakes salting on a large scale, and, his stock—Mackarel, Pilchards, Hakes, &c.—he disposes of by sending to Wales and Spain, retaining only a small portion for the home market. It is only during two or three periods of the year, on occasion of very great catches of Hakes, that he can afford to purchase for his cellar : to obtain any sale during the limited periods of scarcity of fresh fish, he is obliged to retail them at a very cheap rate, and therefore buys in at from 9d. to 1s. a dozen. He has conducted this sphere of commerce about twenty years.

It is estimated, that, in the Port of Plymouth (which includes Saltash, Newton, Cawsand, &c.) 2,000 families are sustained immediately by the fisheries; the wives and children of the fishermen are, in general, concerned in the occupation.

Although Plymouth has, manifestly, greatly advanced of late years in its fishing speculations taken aggregately, it has, from causes which I cannot now investigate the nature of, receded in some departments of trade, of which the Pilchard fishery is one. Ancient authorities agree in informing us that the Pilchard trade formerly thrived here, and, one writer, of the year 1730, says "The Merchants here drive a considerable trade to Virginia, the Sugar Islands, and the Streights. Their Pilchards, which they take in great numbers on their coasts, they send to Spain and Italy, where they are a beneficial commodity." Cawsand has failed in its Pilchard seinery for 25 years.

I cannot omit to mention here a circumstance of great pecuniary importance to Plymouth; the yearly return of the Mackarel season, in December and January, brings, as before remarked, a number of the Eastern fishermen to this Port to prosecute their art, and, this practice seems to be imitated by the Cornish drivers. In February, 1843,

about 150 of the Eastern, and about 130 of the Cornish Luggers, with about 20 French Boats (dealers), had assembled here ; now, as the average number of men to each boat is not less than 6, and, as the expense of 6 men, per week, is not less than £3, there will be a sum, not less than £900 spent weekly in the Port. The stay of these parties here, continues till April, so that, at the lowest estimate, they will expend an amount of £11,700 annually with us. This, however, is a topical view of the case ; the main regard is the abstraction from the sea of so vast a bulk of human food, easing the pressure of poverty, in some, and rewarding, liberally, in others, industrious exertion and intelligent speculation.

NETS, LINES, AND OTHER IMPLEMENTS
USED IN THE FISHERIES OF
DEVON AND CORNWALL.

Stop Sein.—210 to 260 fathoms long, and, 14 to 16 fathoms deep in the middle. It is supported in the water by corks, and weighed down by leads. Used for securing shoals of *Pilchards*, *Herrings*, and *Mackarels*. Large boats, called sein-boats, convey the stop seins. The meshes are in diameter about three fourths of an inch. Most of the driving boats carry small seins, in order to capture the above fish, if fallen in with in very great quantities.

Tuck Sein. (1).—Smaller than the stop sein, and used within its area to bring up the catch of fishes towards the surface ; it is somewhat bag-shaped. The number of individuals required to work a sein is 19 or 20

Tuck Sein. (2).—A net so called from its resemblance to the last, is used in the Port of Plymouth for capturing *Flat-fishes*, *Mulletts*, &c. in bays and harbours. It is 20 fathoms long, 18 feet deep at its mouth, and gradually diminishing thence to 3½ feet.

—— *Sein.*—A deep net with small meshes is sometimes used near land ; it is caused to form a curve or sweep in the water, in order to enclose a shoal of *Mackarels*, or *Herrings*, and the ends and bottom are then drawn together and raised. Length 130 fath. depth 10 fath. ; 3 boats are needed.

Driving Net or Drift.—For the *Pilchard* Fishery, as pursued in Cornwall, a string of about 20 of these arranged along in succession, hanging suspended from a stout rope fitted with corks, is employed ; they are each from 18 to 20 fathoms long, and seven fathoms

deep. Commonly, two or three strings are used. This series of perpendicular nets is conveyed in a lugger manned with four men and a boy. It is calculated that a drift boat will, in a night, catch about 10,000 pilchards, but, it varies from 5, to 20,000. For the *Mackarel* fishery, drift nets are used, each of which is 20 feet deep, and 120 feet long; it is corked at top, but not leaded; the meshes are about $2\frac{1}{2}$ or 3 inches across. The fish, in their progress during the night, get entrapped in the openings,—their heads and pectoral fins passing through, but not the after parts of their bodies.

The *Herring* Fishery is prosecuted by drift nets similar to those just named, but, with a mesh of peculiar size. In the bays in Devonshire, Herring drifts are often moored with large stones, and, in this case, the name of the net is a contradiction to its use.

Diving birds, especially Guillemots, in endeavouring to pass through the meshes of drifts often get hung, and are drawn

up dead. Nearly all fish hung in drifts die from their struggles. Hakes often hang in the meshes by their teeth, and are drawn up, dead, also.

Trawl.—This is formed like a bag, and is about 70 feet long, with a beam, of about 40 feet, or occasionally less than 30 feet, to keep the mouth open, The sailing boats conveying these nets, are usually 40 or 50 Tons burthen, and are Cutter-rigged decked Sloops. The beam of the trawl is at the upper rim of the mouth, and is kept from the ground by heavy irons, which both tend to clear the ground gone over, and to keep the net, effectually, at the bottom. Trawls procure the general supply of *Flat-fishes*, *Gurnards*, *Rays*, and *Hakes*, with great numbers of *Haddock*s, *Surmullet*s, *Basse*, *Poutings*, *Whittings*, &c.

Ground Sein or Sweep Net.—The ends of this net are kept stretched out by staves, to which ropes are attached, for dragging it ashore, as occasion requires. It is used in harbours and rivers, for taking shoals of *Mullet*s, *Sprats*, &c. and also *Salmons*.

Trammel Net.—This hangs in the water by means of leads at the bottom, and is kept floating by a row of corks at the head line ; it is arranged as a curve in the water, and is adapted for *Smelts, Sprats, young Pollacks, Herrings, Basse, Dabs, and young Flat-fishes in general*. Is used at the mouths of rivers.

Hand Net.—Nets worked by two men, who wade into the water, are occasionally used for taking *Salmons* ; poachers employ it. Used at times also for taking *Mullets*, when they have advanced pretty far up the rivers, or into creeks.

Salmon Sein.—Very similar to the Ground Sein, but confined to the capture of *Salmons* and *Peals* when on their upward migration.

Deep Sea Line or Bulter (with many hooks)—For catching *Congers, Flat-fish, Hakes, Basse, &c.* Trawlers and Drivers when prevented, by circumstances, from their ordinary work, often resort to the hook and line fishing in their own vessels.

Spiller or Trot.—This is a modification of the Bulter. It is shot at the time of high water, at the mouths of rivers, and hauled up, for inspection, every six hours. Where the river is so shallow as that the tide wholly retires, and leaves the sand uncovered, the inspection takes place once or twice during the 24 hours by the owner *walking* out to it, and, once or twice by his going to it in a boat. A spiller is shot *across* the tide; it may be about 80 or 100 feet long, each end, with a large stone attached to keep it steady, and, one end, (or both, at option,) with a buoy, to indicate the spot where the apparatus is set; the snoods, each, about a foot and half or two feet long, and pretty numerous, (without however touching each other); the hooks baited with Launce. Many *Huddocks*, young *Cods*, *Poutings*, *Flat-fish*, of all kinds, &c. as they come in, each flood tide, or retire, each ebb, are taken with these spillers. It is a mode of fishing practised constantly at the mouth of the Erme, where I have

participated in the employment ; the sport is however variable. *Flounders* and *Plaice*, as they play about the hooks, are often caught by the hack, belly, or tail.

Hand Line.—For catching *Whitings*, *Poutings*, *Breums*,* *Basse*, *Pollacks*,† *Mackarels*,‡ &c. &c. Hand lines are variously made, in respect of the detail of their fittings, depending on the habits of various sorts of fishes secured by them.

1. *Rod and Line*.—Rod-and-line fishing is called “Angling,” when the artificial fly is not used. It is practised on the coast for procuring *Smelts*, *Rock-fish*, *Dabs*, *Pollacks*, young *Congers*, *Basse*, &c. The usual bait is the salt-mud worm or Lug ; Limpets, Whilks, Launce, and bits of any fish are also used.

* The young of the *Sea Bream* is called a “*Chad*.” These, abound in summer immediately off the coast, and, are taken by hand lines, and by angling.

† Fishing for *Pollacks* with hand lines is called “Whiffing.”

‡ Fishing for *Mackarels* with a hand line is called “Railing,” or “Trailing.”

2. *Rod and Line*.—Angling is also practised in the rivers, both within the reach of the tide, and above it, for obtaining *Salmons*, *Peals*, *Trouts*, and *Eels*. The usual bait is the common earth worm.
3. *Rod and Line, with the artificial Fly*.—Fly fishing is practised in all our rivers for procuring *Salmons*, *Peals*, and *Trouts*, The deleterious influence of mining, on the water, has, however, almost banished these fish from the Plym ; I have myself seen *Trouts*, lying dead in that river. The various sorts of “*Flies*” used in our Devonshire rivers are 1 *the Red Palmer*, 2 *the Blue Palmer*, 3 *the Woodcock’s feather*, 4 *the Partridge’s feather*, and 5 (in very hot weather) *the Black Fly*.
4. *Rod and Line*.—A mode of angling for *Eels*, in rivers, which I believe to be *peculiar to Devon and Cornwall*, and is undescribed in Yarrell’s “*British Fishes*,” consists as follows,—a rod or pole of about six feet in length is procured, and to the smaller end is fastened a stout piece of cord, six or seven feet long ; next, a number of

earth worms, of good size, are obtained, and these are strung together lengthwise by means of a stocking needle and worsted passed through them from end to end; this finished, they are twirled, and tied up together into a mass the bulk of a cricket ball, and, in this state, it is fastened at the end of the line. This bait is let down, with greatest success, in deep pools, and shady nooks under overhanging banks; commonly, the Eels bite at it instantaneously, and, their variously-set curved teeth clinging in the worsted, the angler, with a very quick, but *not jerking* movement, draws out the detained fish. This sport is called "clotting," and, during summer, great numbers are thus obtained.

Tickling Salmons and Peals.—During summer, a great many of these fish are taken in the rivers by what is termed "tickling;" the circumstances are these,—a fish, perceiving some one on the bank, or, hurried by other apprehensions of danger, rushes to some nook under a bank; the fisher,

removing his shoes and stockings, and, drawing his trowsers above his knees, approaches his prey cautiously, and passes his hands under the terrified creature; he then commences tickling its belly, gradually getting nearer and nearer the throat, when, he at once secures it by a sudden and firm gripe. This is the *common* account,—that, terror causes the fish to fly, and to suffer itself to become a victim; but, for my own part, I should judge that it lay *asleep* in these little recesses, for, many fishes sleep very soundly; *Basse*, for example, sleep on the surface of the water, and may be struck by an oar, as they repose.

Wears and Trips.—Nearly all our rivers, at a convenient distance from the sea, are provided with wears or dams to impede the advance of Salmons and Peals upwards, and compel them to enter a small enclosure at one end of them, so constructed as to give ready admission, but prevent retreat or further advance; these enclosures, are termed “Trips,” probably, from a cor-

ruption of the word *trap*. At certain periods of the day, or, as often as the market requires, the renter of certain limits of the river, enters the fish-house, and, with a bag-net suspended from a short pole having a large ring at its end, searches in every corner of the enclosure for his captives.

Launce are turned out of the sand by a small common *shovel*. *Eels*, as they lie, torpid, in the salt mud during winter are secured by a small *spear*. *Cockles* are taken from the sand or mud of rivers at low water, and, especially during spring tides, by means of *rakes* with close set teeth. *Hacks*, or *Razor-fish* can only be secured at low water of spring tides; the fisher provides himself with a pocket-full of salt, and an *iron rod about two feet long, with a barb* at one end; finding a hole where a Hack is lodged, he drops in some salt, on which, the creature, a few inches below, thrusts forth its body (in all likelihood from pain) and, as it advances upwards, he drives the spear perpendicularly through it, and then, with a slight turn of the instrument, to effect a hitch in the creature's flesh, he drags it out of its habitation. *Oysters* are obtained by the use of a dredge, which scrapes the ground, and is drawn up.

It is curious to observe, how little modern improvement has influenced the modes of fishing; thus, the trammel net, the driving net, and the tuck sein were in common use with us, one hundred years since, as were the bulter, the artificial fly, the deep sea-line, together with the spear for Salmon, and the dredge for Oysters; Salmon and Peals were also taken by the process of "tickling" at the same period. Pilchard seines were in use at a *very* early date.

BAITS.

In "trailing" for *Mackarels*, the boat is to be kept moving, and, a slight breeze is a desirable circumstance. Mackarels bite eagerly at any shining body attached to the hook, such as white or red cloth; a slice of one of the same species is however generally used, and they will take most other kinds of bait; the Hand-line employed should have a heavy plummet or sinker, and the bait should be thick where attached to the hook. Driving for *Mackarels* cannot be followed during day or moonlight, as the fish then avoid the nets.

Pollack are mostly taken by Launce, whole, as a bait They frequent clean rocky ground, and, are

most easily taken in the early morning. The young only are taken by the angler off projecting rocks ; the old ones keep in deeper water. At Plymouth, the principal ground for Pollacks, is off the Mewstone.

In Rod-and-line fishing on the rocks, lugs are, mostly used, *Rock-fish, Melets or Smelts, Pollacks, &c.* biting at them freely.

Launce are most easily taken from their retreats in the sand during moonlight nights.

Chads (young Sea Breams) bite, greedily, at the generality of baits, and, multitudes are taken by most marine fishers during summer.

Poutings are mostly taken on rocky ground, especially where the hollows are deep. Ordinary baits succeed, but, the lug is the best.

Whitings occur on sandy ground ; a hand line with a plummet is employed. The usual baits are successful, but, lugs are best.

Dabs, when fished for by hand lines, or, by the rod, from projecting rocks, take lugs, limpets, or other shell fish as bait

Turbots will take baits of several kinds,—mussels, limpets, and slices of fish.

The *Cod* is particularly fond of slices of Mack-

rel, and, in the great fisheries, this is the bait ordinarily used.

Pilchards are mostly taken by Drivers at sunrise and sunset.

The Minnow forms an excellent bait for *Trouts*. &c. and it is imitated by an invention, the "artificial minnow." River fish are also particularly fond of the young yellow trout, and this has been imitated by the "Kill-devil," an improvement on which has been invented by Mr. J. Hearder.

Many *fishes* are taken best in Moonlight, glare somewhat deceiving them; a fire on the shore leads many towards it, and, in the tropics, flying-fish often enter the ports of ships, at night, if there be a light within. I believe the reason to be, that, having got within the sphere of the glare, their eyesight is no longer efficient to guide them, just as moths rush into candles, bats into rooms where there are lights, and sea-birds against the lantern of the Eddystone Lighthouse. Fishes, however, in general are wary, and Mackarels cannot be caught in Moonlight, so that, dark nights are, generally, best for sea fishing.

CATALOGUE

OF THE

FISHES OF DEVON AND CORNWALL.

(The nomenclature and arrangement chiefly after Fleming's
"British Animals.")

Those marked with an Asterisk have hitherto been noticed (as regards the British Isles) only off the coasts and in the rivers of the two south-western counties of England.

Those species of which there is some doubt of their occurrence with us, have the mark ? prefixed to them.

Undetermined species are printed in *Italics*.

CHONDROPTERYGIOUS FISHES.

(Fishes in which the bones are cartilaginous and soft.)

LAMPREYS :—PETROMYZIDÆ.

Petromyzon fluviatilis.—*River Lamprey*. *Lamper Eel*.

Nine Eyes. Rather common in our rivers through the year, spawning in Spring ; also found in the sea from Midsummer to the beginning of the next year. One, while adhering to the neck of a Smelt, was taken in an estuary on December 5th, 1835. They are taken in the sand pits of the Yealm.

Petromyzon marinus.—*Sea Lamprey*. Not common. One was taken in October, in 1840; I know of no case of its capture in rivers.

Petromyzon Planeri.—*Planer's Lamprey*. Cornwall. (Couch)

Ammocoetes branchialis.—*Pride*. Cornwall. (Couch)

Myxine glutinosa.—*Borer*. Cornwall. (Couch)

* *Amphioxus lanceolatus*.—*Lancelet*. Cornwall. (Couch)

SHARKS :—SQUALIDÆ.

Spinax acanthias.—*Picked Dog-fish*. Common.

Mustelus lævis.—*Smooth Hound*.

* *Scyllium melanostomum*.—*Eyed Dog-fish*. Cornwall. (Couch)

Scyllium stellare.—*Large-spotted Dog-fish*. Common.

Scyllium Catulus.—*Smaller-spotted Dog-fish*. Common.

Often taken by the hook. I saw a young one in December, about 9 inches long.

Lamna Cornubica.—*Porbeagle*. Not common. On April 27th, 1836, I saw a specimen which had been taken in a sein; it measured 8 feet; contained 5 young ones.

Squalus maximus.—*Sail-fish*. *Sun-fish*. *Basking Shark*.

* *Squalus spinous*.—(Yarrell)—*Spinous Shark*. During 1836, 1837, and 1838, four specimens were taken.

Carcharias vulgaris.—*White Shark*

Carcharias glaucus.—*Blue Shark*. It follows the Pilchards and Mackarels. A half-grown one, taken June, 1839, is in the Museum of Natural History, at Plymouth.

Carcharias vulpes.—*Thresher*. Rare.

* *Squalus Rashleighanus*. Cornwall. (Couch)

* *Zygena malleus*.—*Hammerhead Shark*. Cornwall.
(Couch)

Galeus vulgaris.—*Tope*. Cornwall. (Couch)

Squatina vulgaris.—*Monk fish or Angel fish*. Rare.

RAYS :—RAIIDÆ.

Trygon pastinaca.—*Sting Ray*. Scarce. One taken at
Plymouth, in Summer, 1842.

Torpedo vulgaris.—*Cramp-fish*.

Raia maculata.—*Spotted Ray or Homelyn Ray*.
Common.

* *Raia microcellata*.—*Painted Ray*. Devon. (Montagu)
Cornwall. (Couch)

Raia clavata.—*Ray or Thornback*. Common.

The female or *Maiden Ray* has large yellow eggs,
in March ; not very numerous.

Raia batis.—*Skate*. Common.

Raia chagrinea.—*Long-nosed Skate*. Common.

Raia aquila } Cornwall.

Raia chardon } (Couch)

Raia circularis

Raia oxyrhynchus.—*Sharp-nosed Ray*.

STURGEONS :—STURIONIDÆ.

Accipenser Sturio.—*Sturgeon*. Scarce. One was taken
in the Tamar in the Spring, 1842. Three or four
small ones were secured off Plymouth in the Summer
following. One was taken in a Trawl off the Eddy-

stone, in December following, weighing about 50 lbs.
and one in February, 1843, weighing 60 lbs. One
captured a few years since weighed 150 lbs.

OSSEOUS FISHES.

(Fishes in which the bones are hard and firm.)

PIPE-FISHES :—SYNGNATHIDÆ.

- Syngnathus acus*.—*Pipe-fish*. Common.
Syngnathus anguineus.—*Snake Pipe-fish*. Not common.
Syngnathus oecoreus.—*Equoreal Pipe-fish*. Salcombe.
 (Montagu)
Syngnathus lumbriciformis —(Jenyns)—*Worm Pipe-fish*.
 Common, under stones ; I have specimens of male,
 and female, taken at Plymouth in January by Mr. G.
 Kearley : the male bears 56 vermilion-coloured ova,
 on the belly, occupying little corresponding pits ;
 the middle row irregular ; the female larger than the
 male.
Syngnathus ophidion.—*Straight-nosed Pipe-fish*. Corn-
 wall. (Couch)
Syngnathus typhle.—*Lesser Pipe-fish*.

GYMNODONTIDÆ.

- * *Tetraodon stellatus*. Cornwall.
Orthogoriscus Mola. A fine specimen was exhibited in
 Plymouth and the neighbourhood, in 1841, taken in
 the Channel, about May or June.
Orthogoriscus truncatus. Rare.

MALACOPTERYGIOUS FISHES.

(Osseous fishes in which the fins are supported by soft cartilaginous articulated rays.)

SALMONS, &c. :—SALMONIDÆ.

Salmo Salar.—*Salmon*. On the Dart, the young Salmon of the first year are called "*Salmon Peals*."

Salmo Eriox.—*Grey*. *Pug Trout*. *Bull Trout*. *Sea Trout*. *Truff*.

Salmo Salmulus.—*Samlet*. *Parr*. Found on the Dart, Plym, Yealm, and Avon, where it is called the *Hipper*.

Salmo Trutta.—*Salmon Peal*. *Salmon Trout*, *Sea Trout*, *White Trout*, and *White Fish* (the young). Common weight, 4 or 5 lbs. *Shoal Peal* is a term used for parties of the young as they pass upwards; as many as 100 have been seen together in a company.

Salmo fario.—*Trout* or *Shot*. Common in all our rivers; stationary. The Cornish Trouts are small. One taken at Exeter, weighed 12 lbs. One taken in the Axe, measured 30½ inches in length, and 16½ in girth, and weighed 11 lbs.

Mr. J. Hearder describes the following varieties in colour. — "(1) Yellow, with large black spots, (2) greenish yellow, with a few red spots, (3) very dark, large spots, yellow belly; this is the largest, and designated, in the Devon rivers, the *Truff*, as distinguished from the *Peal*." There is probably in this

account an indication of *other kinds* than *S. fario*.
The flesh of Trout in the Ockment he describes as *red*.

- * *Salmo* ———. Mr. Ross informs me by letter, (February, 1843,) that "a new species of Salmon was taken at the back of Exmouth Warren, on December 31st, 1842; length, 31 in. circumference, 15½ in. weight, 12 lbs. the *Caligus piscinus* adherent in several parts."

HERRINGS, &c:—*CLUPÆIDÆ*.

Clupea Harengus.—*Herring*. Variable in its movements. Appears first in July, and continues to be taken till November and December. The Herring fishery of Great Britain commences in March at some spots, at others in July, and at others in December; it therefore *never leaves the British coasts*. A few wander in our estuaries in January, and are quite out of season.

Clupea Pilcardus.—*Pilchard*. Abundant, save in an occasional year. It first appears in July and August. Irregular in its movements. Some of them congregate towards the shores in March, April, and May, this section of the species spawning in Spring, while the main body spawn in Autumn. While on the coast, Pilchards consume large quantities of a small fish commonly called "*Britt*."

Clupea Sprattus.—*Sprat*. Abundant in winter, disappearing about the end of January.

Clupea alosa.—(Jenyns)—*Alice Shad*. Not common. Brought to market in Summer.

Clupea finta.—(Jenyns)—*Twaiite Shad*. Not common.
Engraulis encrasicolus.—*Anchovy*. Autumn and Winter.

PIKES :—ESOCIDÆ.

Esox lucius.—*Pike*. In Slapton Ley.
Belone vulgaris.—*Gar Pike*. *Green Bone*. *Long Nose*.
 Not uncommon.

* *Hemiramphus Europæus*. Cornwall. (Couch)
Exocoetus exiliens.—*Greater flying fish*. Some years
 since a specimen threw itself on Plymouth Quay.
 Has been found in Cornwall also, or at least an allied
 species. One threw itself on a ship's deck, in the
 Channel, in November, 1842.

Scomberesox saurus.—*Saury*. Uncommon.

SUCKING FISHES :—CYCLOPTERIDÆ.

Lepadogaster Cornubiensis.—*Cornish Sucker*.
Lepadogaster bimaculatus.—*Bimaculated Sucker*. Torr-
 cross, &c. (Montagu)
Liparis Montagui.—*Montagu's Sucker*. At Milton,
 (Montagu) Cornwall, (Couch)
 * *Cyclopterus coronatus*. (Couch) Cornwall.
Cyclop. lumpus.—*Lump fish*. Not uncommon. Taken
 in Plymouth Sound occasionally.

CODS, &c. :—GADIDÆ.

Morhua vulgaris.—*Cod*. Common.
Morhua æglefinus.—*Haddock*. Common.
Morhua lusca.—*Bib*. *Pouting*. *Pout*. *Blin*. *Whiting*.
Pouting. Common.

Morhua minuta.—*Power*. Common.

Phycis furcatus.—*Fork-beard*. *Hake's Dame*. Not uncommon.

* *Motella glauca*.—(*Jenyns*)—*Mackarel-Midge*. Common.

Raniceps Jago.—*Tadpole fish*. Cornwall. (*Couch*)

Gadus Mustela.—I have taken these, when young, at the mouth of the Yealm in March; by November they are 8 in. long.

Gadus tricciratus. Not uncommon. One in Plymouth Market, November, 1840; another in January, 1843.

* *Gadus argenteolus*. Devon. (*Montagu*)

Molva vulgaris.—*Ling*. Common.

Merlangus carbonarius.—*Coalfish*. *Rauning-Pollack Racer*. Common.

* *Merlangus Poutassou*.—*Poutassou Whiting*. Yarrell, 2nd Edition. Cornwall. (*Couch*)

Merlangus vulgaris.—*Whiting*. Common.

Merlangus Pollachius.—*Pollack*. *Whiting-Pollack*. Common.

Merlangus virens.—*Green Cod*. Cornwall. Mr. Couch considers it to be the young of *M. carbonarius*.

Merlucius vulgaris.—*Huke*. Abundant, but more so formerly.

FLAT-FISHES :—PLEURONECTIDÆ.

Pleuronectes maximus.—*Turbot*. Not uncommon.

Pleuronectes megastoma.—*Whiff*. *Carter*. *Megrim*. *French Sole*. The commonest species at Plymouth.

I but seldom see the ocellated marks in them. Very light brown, and slightly livid.

Pleuronectes rhombus.—*Brill*. *Kite*. Keeps in deep water. Common.

Pleuronectes punctatus.—*Top-knot*. Uncommon.

Pleuronectes arnoglossus.—*Scald-fish*. *Megrim* of "*Yarrell's British Fishes*." Limited to the Southern coasts of Great Britain.

Solea vulgaris.—*Sole*. Abundant.

Solea variegata.—*Variegated Sole*. Not scarce in Winter and till May. Mr. Yarrell describes this species, a discovery of late years, as being thicker, proportionably to its size, than other kinds; it will be pleasing to him to learn, that in Plymouth Market they invariably pass under the denomination of *Thick-backs*. We usually see them of 5 or 6 inches in length, but occasionally are of 7 or 8 inches. They are trawled up with the Common Sole.

? *Solea pegusa*.—*Lemon Sole*.

Platessa microcephalus.—*Lemon Dab*. *Mary-sole*. Common. Some are very light coloured, a kind of faint yellowish, and others, nearly black. This, observed in the present and the next species, January, 1843.

Platessa vulgaris.—*Plaice*. Common.

Platessa flesus.—*Flounder*. Common in harbours and estuaries. Has through the effects of floods, obtained a residence in Slapton Ley, which is a fresh-water lake.

Platessa limanda.—*Dab*. Common. I have had a specimen with the under side similar to the upper.

Hippoglossus vulgaris.—*Holbut*. Common.

Monochirus minutus.—(Dr. Parnell)

EELS, &c:—MURENIDÆ.

Anguilla vulgaris.—*Eel*. Great numbers are stationary in the sea.

Anguilla latirostris. (Yarrell)

Anguilla mediorostris.—*Snig Eel*. (Yarrell) Common.

Anguilla Conger.—*Conger Eel*. Abundant among rocks.

Ophidium imberbe. Devon. (Montagu)

* *Muræna Helena*.—*Muræne*. Cornwall. (Couch)

Leptocephalus Morrissi.—*Morris*.

Ammodytes Tobianus.—(Jenyns)—*Sand Eel*. Not very common.

Ammodytes lancea.—(Jenyns)—*Sand Launce*. Abundant in estuaries, and at river mouths.

This species and the previous one reside in the sand during the retreat of the tide ; they spawn in winter, moving at that season somewhat up the rivers, in order to secure a spot undisturbed by the violence of the waves, for the deposit of the ova.

CARPS :—CYPRINIDÆ.

Leuciscus vulgaris.—*Dace*. In the Tamar.

Leuciscus cephalus.—*Chubb*. In the Exe.

Leuciscus phoxinus.—*Minnow*. In streamlets.

Gobitis barbatula.—*Loach*. Cornwall.

ACANTHOPTERYGIOUS FISHES.

(Osseous fishes in which the first rays of the dorsal, anal, and ventral fins are supported by simple spines.)

RIBBAND-SHAPED FISHES.

- * *Cepola rubescens*.—*Red-band fish*. Not very rare. Generally thrown ashore after storms. One taken at the Eddystone, at low water, February, 1841.
- * *Gymnetrus Hawkenii*. Cornwall. (Couch)
- * *Lepidopus tetradens*.—*Scabbard fish*. Several specimens have been taken,—one in October, 1840, at Penzance, one in June, 1841, at Brixham, and one in the Spring of 1842, near the same place.

THE MAIGRES :—SCIENIDÆ.

- Sciæna Aquila*,—(Cuv.)—*Maigre*. Cornwall, (Couch) Devon, (Holdsworth)
- * *Umbrina vulgaris*.—*Bearded Umbrina*. A specimen taken in the Exe in 1827.

THE SEA BREAMS :—SPARIDÆ.

- Chrysophrys aurata*.—(Cuv.)—*Gilt Head*.
- Pagrus vulgaris*.—(Cuv.)—*Braise*. Not uncommon in Summer and Autumn, but not seen in our markets at other times. I saw one in October, 1840, which was 1½ ft. long.
- Pagellus erythrinus*.—(Cuv.)—*Spanish Bream*. Uncommon.

Pagellus centrodontus.—(Cuv.).—*Sea Bream*. Common; chiefly in Summer. The young are called "*Chads*," and are without the black spot, till about 7 ins. long.

Cantharus griseus.—(Cuv.).—*Black Bream*. *Old Wife*.

Mr. Couch says it is common in Cornwall, but, at Plymouth, it is certainly rarely seen in the market, especially in winter.

Brama Raii.—(Cuv.).—*Ray's Bream*.

THE WRASSES :—LABRIDÆ.

Labrus Balanus.—*Ballan Wrasse*. Not scarce. Many are seen in the market about October.

* *Labrus lineatus*.—*Green-streaked Wrasse*. Taken in the Exe in September, 1842, and I have known it once taken off the rocks near Plymouth, in Summer.

Labrus variegatus.—(Linn.).—*Blue-striped Wrasse*. Cook. Common.

? *Labrus suillus*. (Linn.) Cornwall. (Couch)

? *Labrus bimaculatus*. (Linn.) Cornwall. (Couch)

Labrus carneus.—(Cuv.).—*Red Wrasse*.

* *Labrus comber*.—(Linn.).—*Comber Wrasse*.

* *Julis vulgaris*.—*Rainbow Wrasse*.

Crenilabrus tinca.—*Connor*. *Goldsinny*. Common.

Crenilabrus Cornubicus.—*Corkwing*.

Crenilabrus gibbus.—*Gibbous Wrasse*.

Crenilabrus microstoma.—(Couch)—*Rock Cook*.

Crenilabrus luscus.—(Couch)—*Scale-rayed Wrasse*.

FISTULARIDÆ :—TUBE-MOUTHED FISHES.

Centriscus scolopax.—*Trumpet fish*. Cornwall. (Couch)

MULLETS :—MUGILIDÆ.

Mugil cephalus.—*Mullet*. Abundant. Congregate in estuaries in Autumn. Has been taken by the fly in fresh water above Longbridge.*

* *Mugil chelo*.—(Cuv.)—*Thick-lipped Grey Mullet*. Not uncommon with the other species in Autumn.

Atherina hepsetus.—*Smelt*. *Atherine*. *Melet*. In estuaries. Common.

BLENNIES, GOBIES, &c :—GOBIOIDÆ.

* *Blennius Montagu*.—*Montagu's Blenny*.

Blennius ocellaris.—*Ocellated Blenny*. Devon. (Montagu) Not recognised in Cornwall by Mr. Couch.

* *Blennius palmicornis*.—(Yarrell)—*Palm-crested Blenny*. Cornwall. (Couch)

Blennius gattorugine.—*Gattoruginous Blenny*. One taken by Mr. Pincombe, in Summer, in Plymouth Sound, is about 6 ins. long, and of a brownish colour.

Pholis lævis.—*Shanny*. *Shan*. *Shacky*. *Mulgranock*. Common among rocks on the shore, and frequently occupying crevices after the tide has receded, remaining till its return, having great tenacity of life.

Gunnellus vulgaris.—*Gunnel*. *Nine Eyes*. *Butterfish*. Common under stones at low water.

Gunnellus viviparus.—*Viviparous Blenny*. *Greenbone*. Not uncommon.

Gobius niger.—*Groundling*. *Rock-fish*. *Miller's Thumb*.

* Mr. J. Hearder, Correspondent.

Gobius bipunctatus.—(Yarrell)—*Two-spotted Goby*.

Gobius minutus.—*Spotted Goby*. Britt.? Common along shore; fed on by various larger fishes.

Callionymus Lyra.—*Yellow Skulpin*. *Dragonet*. Not uncommon. There seems great difficulty in distinguishing the two kinds, by the descriptions; one examined July 8th, seemed to be the *Lyra* in colour, but, the *Dracunculus* in other respects.

Callionymus dracunculus.—*Dusky Skulpin*. Common.

ANGLERS.

Lophius piscatorius.—*Angler*. *Monk*. *Sea Devil*. Not uncommon.

* ? *Lophius parvipinnis*. (Couch)

* *Lophius Borlasi*. (Couch)

PERCHES, &c.:—PERCIDÆ.

Serranus Cabrilla.—(Jenyns)—*Comber*. *Connor*. Common.

* *Serranus gigas*.—*Dusky Serranus*. Cornwall. (Couch)

* *Serranus Couchii*.—*Stone Basse*. Cornwall. (Couch)
This name, *Stone Basse*, is familiar to fishermen generally, and I think it is the present species.

Hæmulon formosum.—(Cuv.)—*Squirrel fish*. Cornwall. (Couch)

Perca Labrax.—*Basse*. *Salmon Basse*. Common. In harbours in June, July, and August. They have been taken with a *Salmon fly* in *Barn Pool*, off *Plymouth*.

Trachinus Draco.—*Weaver*. *Sting fish*. Uncommon.
On June 4th, 1836, several were taken off the *Yealm*.

and persons incautiously handling them, received severe and very disagreeable wounds from their foremost dorsal fins. Length of one 1 ft. 4½ ins. Taken in Summer and Autumn.

Trachinus Vipera.—*Lesser Weaver*. Not common.

Mullus surmuletus.—*Surmullet*. Frequently abundant in Cornwall, but by no means so, in Devon.

† *Mullus barbatus*.—*Red Surmullet*, Cornwall. (Couch)

GURNARDS.

Trigla Lyra.—*Piper*. Common.

Trigla lineata.—*Streaked Gurnard*. *French Gurnard*.

Trigla hirundo.—*Tub. Sapphirine Gurnard*. Common.

Trigla Gurnardus.—*Grey Gurnard*. Common.

Trigla Blochii.—*Bloch's Gurnard*.

Trigla—*Cuvier's Gurnard*. Cornwall. (Couch)

* *Trigla lucerna*.—*High-finned Gurnard* (Dr. Parnell)

Trigla Cuculus.—(Linn.)—*Red Gurnard*. Common.

* *Peristedion Malarmat*.—(Cuv.)—*Mailed Gurnard*. A specimen taken by the Trawl, between Plymouth and the Eddystone, is described by Dr. Moore in Loudon's "Magazine of Natural History," on September 5th, 1836. Since then Mr. Peach has found that two specimens have been taken at Gorran, Cornwall, in 1838.

BULLHEADS, &c.

Cataphractus Schoneveldii.—*Pogge*. Ascend estuaries to spawn in summer. In 1840 they ascended the Plym

in April; there were but few males among the lot I examined.

Cottus gobio.—*Miller's Thumb*. Common in rivers and creeks.

- * *Cottus spinosus caudatus*. (Ross) Under this title, a large and beautifully coloured specimen (one of a great many like it taken at once) was sent by that intelligent naturalist, Mr. Ross, of Topsham, to the Devon and Cornwall Natural History Society, in January, 1843. It is about 6 inches long, and certainly seems different from the common sort. I shall not forestall Mr. Ross by any description of his discovery.

Cottus bubalis.—*Father lasher*.

Cottus scorpius.—*Sea Scorpion*. In harbours.

MACKARELS :—SCOMBERIDÆ.

Scomber colias.—*Spanish Mackerel*.

Scomber vulgaris.—*Mackerel*. End of Winter and Spring. Some wander in harbours in Summer.

Scomber Thynnus.—*Tunny*. Rare.

Scomber Pelamys.—*Bonito*. Rare.

Trachurus vulgaris.—*Scad*. *Horse Mackerel*. Some are taken in the end of Winter, and some in Summer.

* *Trachurus glaucus*.—*Albacore*. Cornwall. (Couch)

Zeus Aper.—*Boar fish*. Cornwall. (Couch)

Zeus Faber.—*Doree*. Common at all seasons, but those taken in Winter are principally young ones.

* *Pelamys Sarda*.—*Belted Bonito*, Cornwall. (Couch)

Xiphias Gladius.—*Sword-fish*. There are narratives,—not to be depended on, of the capture of this fish off our coasts, and of its having pierced a ship's keel, with its snout.

* *Centrolophus pompilius*.—(Cuv.)—*Black-fish*. Cornwall. (Couch)

Centronotus ductor.—(Jenyns)—*Pilot fish*. Visits us almost yearly in the company of Mediterranean ships. Among other cases, two were taken at Plymouth, which came with a ship from Alexandria, 1831 ; in 1833 nearly 100, which came with a ship from Sicily, were taken at Plymouth ; in 1839 one was taken at Plymouth, and is preserved in the Natural History Museum, and in 1842 one which had wandered up the river Erme, into fresh water, as far as Ivybridge, was procured by Dr. Moore, and one was taken at Falmouth.

Lampris Luna.—(Jenyns)—*Opah or King-fish*. One has been taken at Brixham.

STICKLEBACKS.

Gasterosteus aculeatus.—*Stickleback*. In ditches and rivulets, and in vast numbers in the pools of salt marshes, with the two next.

Gasterosteus semiarmatus.—*Half-armed Stickleback*. Common.

Gasterosteus leiurus.—*Smooth-tailed Stickleback*. Common.

Spinachia vulgaris. — *Fifteen-spined Stickleback*. Common. Ascends rivers to spawn in Winter. Mr. Ross communicates to me as follows, "They have been taken in the fresh water of the Teign, in November, and had ova in them at the end of December." I have known them to remain in the Plym, till end of April.

*Species introduced and naturalized in
these Counties.*

Perch.—*Perca fluviatilis*. Slapton Ley, and ponds at St. Austell.

Carp.—*Cyprinus Carpio*. Ponds in Cornwall.

Golden Carp.—*Cyprinus auratus*. In the stream at Brixham.*

Tench.—*Cyprinus Tinca*. In ponds in Cornwall.

Roach.—*Leuciscus rutilus*. In Slapton Ley.

* Mr. G. Bartlett, Correspondent.

ADDITIONAL MEMORANDA RESPECTING FISHES, &c.

During South West winds of any violence, the *generality of fishes* pass to deep water to avoid the turbulence thus created.

Sticklebacks (*Gasteros* : *Leïurus*) are plentiful round Plymouth ; they are seen to bite one another fiercely ; eat minute floating bodies ; arrive at $2\frac{1}{2}$ inches in length.

The *Common Sea Bream* evidently spawns twice in the year ; the "Chads" are taken abundantly in Summer, in 4 or 5 fathoms water, and, from December to April, we find the same fry trawled up in great quantities, which are therefore, evidently, the result of a late spawning; none of the large fish are taken in Winter. The black thoracic spot begins to appear in this latter fry about February, and the fish also lose the short rounded form, and begin to lengthen greatly. These double spawnings in some species are evidently among the provisions of a beneficent Providence.

Young Gurnards and Chads are in the Market commonly disposed of at 2d. a dozen, and, great quantities of them enrich the manure heap !

Pilchards. After the regular season of the sea fishery, parties of this species are fallen in with by our Mackarel

Drivers on to February, and a few hang in the meshes, and are brought to market. I *believe* these prove very poor food, and are I presume out of season. This notice of the species accords with Mr. Couch's account that it has a vernal as well as autumnal spawning, and that Pilchards heavy with roe were on the Cornish coast, in April, 1836. October is the season when the main body spawn.

Several of the *Flat-fishes* seem to spawn at opposite seasons, as, though they are generally observed to have well developed roe about March, and the produce of this spawning appear in harbours about August, yet I have seen young *Turbots*, *Brills*, *Plaice*, *Flounders*, *Soles*, *Dabs*, and *Whiffs*, from January to March, and, *Flukes* 6 and 7 inches long, are taken in great numbers at river mouths in May, all of which must be the produce of a spawning towards the end of Autumn. Mr. Yarrell describes the Plaice as best for eating in May. Flat-fishes in general, when with *small* roe, even in March, are tolerable food.

Experienced Mackarel men have the habit of searching in-shore for a small fish they term *Mackarel bait* or *Britt*, which, they say, precedes the shoals. It is the food not only of *Mackarels*, but to a large amount of the *Turbot*, *Pilchard*, &c.

There is a kind of fish noticed by fishermen, and described by them as like the *White bait*, which pursues its course through the water in small parties, proceeding in long strings, and with quick, devious motions.

Both the *Pollack* and the *Hake* seem to spawn at very

various periods; some *Pollacks* are found in the reduced state following this function, in the month of September; and I have seen young *Pollacks* 3 inches long in January; some *Hakes* are found to be excellent in January, and young ones are trawled up from December to April, from 9 inches to 1½ feet long.

Surmulletts, of 6 and 8 inches length, are taken by the trawl about December, and January, and, young ones of about the same size are captured by the net, in-shore, during the spring, when in search of some favourite diet.

Sticklebacks (*G. semiarmatus*) when disturbed by noise or intrusion, endeavour to avoid observation, by thrusting the fore parts of their bodies into the sand, or under weeds, allowing themselves thus to be taken by hand. *Sticklebacks* devour the young of their own kind and the minute fry of Eels.

Dabs are often taken in Summer off the rocks by hook and line.

A *Holibut* taken May, 1842, weighed above 100lbs. and measured 6 feet in length.

Young *Basse* are taken in estuaries in winter and are in February, about 8 inches long. I have seen an old one 3 feet long.

Eels are seen to ascend the river Avon in Summer, but not in large quantities.* I have had proof that *Eels* will devour the fry of their own species. *Eels* were in the mud off Plymouth, at Oreston, and Mount Edgcumbe, through

* Lieut. Taylor, Correspondent.

the months of July and August, 1840. I have seen small, and, rarely, large *Eels* caught in a rivulet at Crabtree, in August.

The peculiar-shaped bone of *Ehippium gigas* has been picked up at Whisesand Bay ; what this may indicate I know not.

The *Mackarel* of Mounts Bay are particularly fine in size and flavour. Though this fish is recorded to be very difficult of keeping, I have known a case of a lot remaining very good a whole fortnight. *Harbour Mackarel* taken in Summer, are small and good ; they are, probably, fish of immature size.

Numerous young of *Whiting* and *Pouting*, from 6 to 8 inches long, are taken early in Spring.

In March, I have seen Cod brought to market with *roes* as large as four fists together, and those of Conger similarly advanced ; these *roes* procure a separate sale.

I have seen a young Tub not 3 inches long, in March ; this must be the produce of a winter spawning.

Salmons are often found to wait at the mouths of rivers, for a "fresh" before passing upwards. Does the food conveyed in these "freshes" tempt them forwards ? or, is it a necessary signal to them, of there being enough water to convey them to their destination, past the many shallow portions of the rivers ? All things considered, it appears to me that the latter is the reason of their stay. In the great northern rivers, the Salmon fishery begins about February, or earlier, and on the Plym, from Long-bridge down towards Oreston, it is included between

February 15th and November 15th ; this limitation provided by the old Act of Parliament, while the Tamar and some other rivers are placed under a *new* Act, is complained of by the present renter, who thinks it should be from April to end of December, to give him a fair chance ; such an extension, however, of the time into the spawning season, would be most unwise. According to the shewing of this person, he has taken Salmon with spawn at Michaelmas, under Saltram, and captured some of the second run, with roe, on February 22nd, so that he probability is, the Act in question is rather too generous towards him. He employs a "*stop net*" (*stake net*) at one part of the river, and in suited spots uses a *small ground sean*, with a bunt and leads. "*White fish*," with some larger individuals, were descending at Long-bridge, on March 11th, 1843. Mr. J. Hearder speaking of our rivers generally, thinks that in warm weather young Peals descend as early as February, but that commonly their descent is deferred till March, April, and May.

Respecting the growth of the Salmon, Mr. J. Young, of Sutherlandshire, has found as follows.—*Smolts* marked in April and May became *Grilse* of several pounds in June and July, one marked in April became a *Grilse* of 7 lbs. by July 25th, and one marked in May was 3½ lbs. by July 30th. *Salmons* spawn after their first ascent before they are adult, and some of these marked at this juncture were found in Summer, from 9 to 14 lbs. a *Grilse* of 4 lbs. in January was 9 lbs. in July, and lastly, a *Salmon* of 12 lbs. on March 4th was, by July 10th, 18 lbs.

The French, in carrying back, from our shores, their purchase of *Skates*, bury them in wet sand, to keep them fresh.

The *unusual plenty* in which some kinds of fish are occasionally noticed probably depends on the ova having escaped the ordinary amount of consumption to which it is destined, as food for other species.

The *Grey Gurnard* probably goes through its seasonal changes similarly to the *Tub*, *Piper*, and *Red Gurnard*, spawning in Spring, about March or April; a specimen examined on February 15th, 1843, had its roe in an early stage of development, and its flesh was of tolerable flavour. It is brought to market through greater part of the Winter.

The *Scad*, or *Horse Mackarel*, was, in December, 1842, and till end of March, 1843, rather common in Plymouth Market, among the ordinary products of the Trawl; they are at this season, probably, repairing to the deep grounds to spawn, as they are found with advanced roe and milt in the middle of February. Through the whole of Winter, and Spring, I find them very insipid food.

The *Herring* certainly does not ever leave the coasts of the British Isles; its migrations to and from the Arctic Circle are imaginary. We have evidence, that from July to January, it is on the coasts of Devon and Cornwall, as between June and February, it is taken in greater or less numbers. In December, the *Herring* fishery is often proceeding in Ireland (?); the species also arrives on the Irish Coast in March, and, in June, the fishery is there active. Low (*Fauna Orcadensis*, p. 226, 227,) writes "the

Shetland Isles swarm with them in April, and later,—the east coast of Caithness in August,—the Hebrides at the latter end of the year," and again "at certain times, our sounds swarm with their fry ;—I have caught great numbers of these in June about 7 or 8 inches long, in the fresh water at the mouth of the loch of Stenness." With us in Devon, the young of the size here named by Mr. Low are taken at the end of the year. The Cornish Drivers often pass over to Ireland in the middle of Summer to the Herring fishery ; on their return, they commence the Pilchard fishery which lasts till late in the year, and, in January they move to Plymouth, to pursue, till April, the Mackarel fishery. After this, some of them repair to the North Sea, to prosecute the Herring fishery of those coasts.

Mr. Couch has noticed that in some fishes, one ovary officiates at a time, thus providing *broods of young* at different periods from the same individual parent. This fact, added to that of the ova as deposited from a fish, changing to the young fry, *not simultaneously*, explains why the young of many species are noticed in the course of the year above once ; young Haddock, for example, 1 ft. long, may be seen in December, and again of similar size on to April.

We are far too prone to regard the sea in the light of a wilderness of produce, a sort of chaos, where multitudes of creatures exist confusedly, and without ordained purpose or relation to others ; such a conclusion is palpably erroneous, and, is at variance with all analogy in nature.

How unjust in every sense, then, is the *reckless destruction* of countless young fishes, heaps of ova, and immense multitudes of inferior grades of animals, the residents of its beds !

I fear that in a foregoing part of this work I have been led into an erroneous statement of the products of the *Pilchard Fishery*. The N. W. coast of Cornwall, is, I find, the only locality where this business thrives ; " the Pilchard fishery at this place (Mevagissey), and from Bigbury to Lizard, has been a decided and heavy loss, on the average of years, for 25 years past. Particular seasons in the period may have left profit to *particular concerns*, but, I almost question whether any *one* year of the 25 will have left any profit *on the average of the whole adventure*, to the above-named line of coast. West of the Lizard, I believe it may be said, the sein fishery in Mount's Bay is almost come to an end, and the drift fishery in a ruinous state, — only kept alive by the Mackarel and Herring fisheries. Pilchard driving *separately* cannot pay."* " My own opinion is, that taking in the last 30 years, the Pilchard fishery would be found unproductive on an average of the two Counties, though at St. Ives there would be a profit in favour of the speculation."† The only remaining question, therefore, now is, what may be the amount of clear profit at St. Ives, and *that* range of

* Mr. Pearce, Jun. Mevagissey, Correspondent.

† Mr. R. H. Bamfield, St. Ives, Correspondent.

SECTION 1. GENERAL

THESE RULES ARE APPLICABLE TO ALL MEMBERS OF THE SOCIETY. THE PURPOSE OF THESE RULES IS TO MAINTAIN THE ORDER AND DISCIPLINE OF THE SOCIETY. THE RULES SHALL BE ENFORCED BY THE BOARD OF DIRECTORS. THE BOARD OF DIRECTORS SHALL HAVE THE RIGHT TO AMEND THESE RULES AT ANY TIME. THE RULES SHALL BE APPLICABLE TO ALL MEMBERS OF THE SOCIETY.

ARTICLE I. OF THE PURPOSE AND OBJECTS OF THE SOCIETY. THE PURPOSE OF THE SOCIETY IS TO PROMOTE THE INTERESTS OF THE MEMBERS AND TO MAINTAIN THE ORDER AND DISCIPLINE OF THE SOCIETY. THE OBJECTS OF THE SOCIETY ARE TO PROMOTE THE INTERESTS OF THE MEMBERS AND TO MAINTAIN THE ORDER AND DISCIPLINE OF THE SOCIETY.

ARTICLE II. OF THE MEMBERSHIP. THE MEMBERSHIP OF THE SOCIETY SHALL BE OPEN TO ALL PERSONS WHOSE NAMES ARE SUBMITTED TO THE BOARD OF DIRECTORS AND WHOSE NAMES ARE APPROVED BY THE BOARD OF DIRECTORS.

ARTICLE III. OF THE FEES. THE FEES OF THE SOCIETY SHALL BE AS FOLLOWS:

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2. CONTRIBUTION TO THE FUND: \$5.00

3. CONTRIBUTION TO THE LIBRARY: \$2.00

4. CONTRIBUTION TO THE GARDEN: \$1.00

5. CONTRIBUTION TO THE MUSEUM: \$1.00

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These questions, pursued through an extensive list of individuals, (far from deficient intellectually) would lead to numerous disclosures of the root of those calamities and improprieties for which it is to be hoped some legal cures will speedily be found. Two Goliaths must in the first place be subdued,—disarmed of their destructive weapons, if not destroyed; one is the *Trawl*, which is fast bringing ruin on numbers of the poorer orders requiring the most considerate protection; the fishermen of Cawsand complain to me that their profits gradually lessen, and point to the reckless destruction of spawn and young fish by Trawlers, as the great source of their misfortunes; the second is *Pilchard Driving*, “which is carried on in open defiance of the law for the protection of the Pilchard Seinery, and which is the great cause of the ruinous loss, and almost total annihilation of the latter, *once a source of great individual profit and national importance.*” * The compulsion of fishermen to submit to this catechism would be the means of discovering their characters, and pursuits, and would tend to purge the class in question of parties noxious from immorality or illegal actions.

* Mr. Pearse, Jun. Mevagissey, Correspondent.

MEMORANDA RESPECTING FLY-FISHING,

In the Neighbourhood of Plymouth,

BY MR. J. HEARDER.

MEAVY and PLYM. Flies.—*Red and Blue Pulmer* throughout the year; in bright hot weather, *Stone Fly* and *Black Gnat*, especially high on the Moor; in windy weather, the *Partridge* and *Woodcock Flies* will kill. Best wind between W. and S.; N. to E. very objectionable.

CADOVER. *Red, Blue, and Woodcock Flies.* Best wind W.; E. very unfavourable.

WALKHAM and TAVY require gaudy flies.—*Green and Grey Drake, Red, Blue, and Black, with gold or silver twist.* Tavy requires large flies. Best wind W.

YEALM, ERMF, AVON, and DART take *Red and Blue Flies* near the Sea, but, near the Moor, *Blue and Brown Flies*; in hot weather, *Black Gnat* anywhere. Best wind S. to W.; N. very unfavourable; E. not unfavourable, if warm.

TAMAR takes *large Red and Blue Flies*, with *Black and Brown* in hot weather. S. wind favourable: N. wind unfavourable.

Salmon Peal (*Salmo trutta*) and *Salmon* take gaudy flies in all rivers.

The *White Moth* may be used about sunrise or sunset, in all these rivers, after June, for any species. In May and June the *natural Fern-web* is a very killing bait; it is employed in what is termed "dapping," with a short line, under shady banks, in deep pools, or still water; or, the *Blue-bottle Fly* and *Grasshopper* may be used in the same operation whenever procurable. The best fishing is always *against* the stream.

SPORTING EXCURSIONS

RECOMMENDED BY MR. J. HEARDER.

“Sportsmen resident at Plymouth and Devonport may procure a day's fishing, by taking any of the following trips. [1] Ride by morning stage, or walk to Long-Bridge; fish up the Plym to Shaugh Bridge, and back; or, [2] fish to Hoo Meavy Bridge, walk across the Down to Tavistock Road, and return by North Devon Coach; or, [3] having fished to Shaugh, proceed up the Cad, and return to Shaugh and sleep; next day, fish as far as Cadover Bridge, then cross to the Meavy, and fish down that river homewards. [4] Ride to Horrabridge, fish up and down the Walkham, and take coach homewards in the evening. [5] Ride, by morning stage, as far as Roborough Rock, proceed eastward to the Meavy, fish upwards beyond Meavy, then cross to the Walkham, and fish down that river to Wheal Franco Mine, and so return to Plymouth by coach from thence; or, [6] proceed down the Walkham from Wheal Franco as far as Virtuous Lady Mine, and walk from that spot back to the Tavistock Road, and take the homeward coach. [7] Ride to Hoo Meavy Bridge, and fish down the river to Long-Bridge. [8] Ride to Roborough Rock, walk to Meavy, fish up through Sheepstor, as far as possible, and return to Meavy; sleep there, and fish homewards next day. [9] Ride to Maristow Lodge, walk to the Tavy, fish up to Tavistock, and take coach home in the evening.

“The rivers to the eastward of Plymouth may be thus reached:—[10] *Yealm*. Take early coach to Lee Mill Bridge or Yealmlpton, fish up, and back, and so return by late coach. [11] *Erme*. Take early coach to Ivybridge, or to Ermington, fish up, and return to Ivybridge for afternoon coach, or to Ermington for evening coach. [12] *Avon*. Coach to Newhouse, fish up or down, and return for evening coach. [13] A three days' excursion, on foot, may be thus taken; fish up the Plym and Meavy, to the source, and return to Meavy Town to sleep; next day, fish downwards to Shaugh, or to Bickleigh, and sleep there that night; next day, fish homewards. Excellent

fishing is obtained above the weir of Plymouth Leat." [14] Sportsmen often repair to the Moor for several days, to enjoy the fishing in that spot, lodging the while at Prince Town, or Two Bridges. There is excellent sport in the streams in that neighbourhood, — the Cowsic, the Walkham, Cherry Brook, the Dart (E. and W.), Wallow Brook, &c.

The Lumber (which falls into the Tavy), situated west of Tavistock, affords tolerable sport to the fishermen of that neighbourhood; it is, however, greatly poached on.

Fly-fishers often begin their sport in March, if the weather be propitious. Permission need be gained from the landed proprietors where the river, that is desired to be sported on, is situated. Tickets for the Meavy and N. side of the Cad, may be had of Mr. Giles, Jump, or of the Innkeeper, at Bickleigh. The Yealm is at present rented by Capt. Young, Yealmpton. The Plym, above Long-Bridge, is rented by a person called Dove, who has a house of call near the bridge; he charges fishers — per day, 2s. 6d. per month, or 10s. per season, confining them to flies or angling. Trout are, at this date, (March, 1843) plentiful, just above the bridge.

I cannot conclude this little work, extended as it has been, to a size tenfold that which I originally prescribed to it, without once more pleading on behalf of most important interests,—interests which should seem the greater, in proportion as they affect *the poor*,—by invoking inquiry into many grievances here disclosed. I earnestly ask those who are vested with authority and influence, and those who hold great pecuniary stakes, dependent on the “Fisheries,” to endeavour to avert the impending evils I have indicated; they are evils which probably, may not be reduced, far less, extinguished, without the cost of temporary inconvenience, in the one case, and temporary loss, in the other; but, they are calamities, the prevention of which by the present generation, will produce in the next, benefits, the extent whereof it would be presumptuous to calculate.

The reader, who is interested in Statistics, will find an important *error* in my statement of the profits of the pilchard fishery; he will please consult page 138 for its correction.

“Let the waters bring forth abundantly.”

1



